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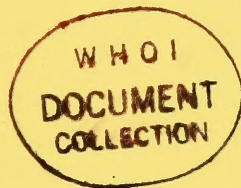
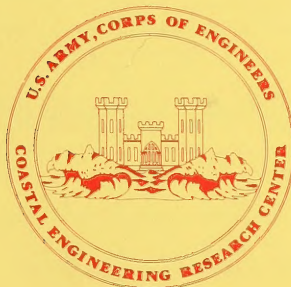
Benthic Community Response to Dredging Borrow Pits, Panama City Beach, Florida

by

Carl H. Saloman, Steven P. Naughton, and John L. Taylor

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<p>This report gives biological and physical oceanographic data from base-line work, and studies of dredged and undredged sediments before and after dredging (9-meter contour) for beach nourishment at Panama City Beach, Florida. These studies were designed to show major short-term environmental effects of offshore dredging and included analyses of hydrology, sediments, and benthos.</p> <p style="text-align: right;">(continued)</p>		

Hydrological measurements were limited to water temperature and salinity. Analysis of surface sediments included particle-size distribution, carbon chemistry, and statistical properties of mean grain size, sorting, skewness, and kurtosis. Average and extreme periods of water temperature and salinity were recorded. Regional nearshore sediments proved to be fine sand, containing less than 1 percent silt-clay, that was moderately well to well sorted, symmetrical to coarsely skewed, and leptokurtic. Total carbon content averaged less than 0.30 percent, and most of that occurred in the form of carbonate deposits. Over a postdredging study period of 1 year, sediment samples from borrow pits showed little variation from these general features.

In studies of the benthos, 362 species and 58,068 individuals were recorded among 14 invertebrate phyla and bony fishes. Dominant groups by species and abundance included annelida, mollusca, and arthropoda (crustacea). Faunal comparisons between dredged and undredged areas were made on the basis of species richness and abundance, the Shannon-Weaver index of diversity (H'), Pielou's index of equitability (J'), Morisita's index of faunal similarity (together with matrices and classification diagrams derived from that index), and two statistical derivations, based on diversity and abundance data, that were designed to show sample-to-sample faunal variations and the time period required for faunal recovery in borrow pits. Information obtained from these procedures showed that recovery began soon after dredging and was complete, or nearly so, within 1 year.

These results were similar in most respects to those from study of offshore dredging elsewhere in comparable geographic settings. Even so, the need for close association between ecological research and coastal engineering programs is emphasized.

PREFACE

This report gives preconstruction and postconstruction environmental data related to short-term effects of beach nourishment at Panama City Beach, Florida. Areas of study included water quality, sediments, and benthic invertebrates. Dredging and beach restoration were done by the U.S. Army Engineer District, Mobile, and research was sponsored by the U.S. Army Coastal Engineering Research Center (CERC), and by the National Marine Fisheries Service (NMFS), Gulf Fisheries Center, Panama City Beach, Florida. The work was carried out under the coastal ecology research program.

The report is based on data collected and compiled by Carl H. Saloman and Steven P. Naughton, NMFS, who assisted Dr. John L. Taylor, Taylor Biological Company, Inc., in preparing the report under CERC Contract No. DACW72-81-M-0198. Invaluable assistance with statistical programs and data processing was provided by Dr. S.A. Bloom, Department of Zoology, University of Florida, Gainesville. Editorial reviews were provided by E. Nakamura, NMFS, and by B. Hall, CERC.

The authors acknowledge the assistance of their colleagues for identification of the following faunal groups: Dr. R.W. Heard, Jr., Gulf Coast Research Laboratory, Ocean Springs, Mississippi (crustacea); and J.R. Hall, National Marine Fisheries Service, Washington, D.C. (mollusca). Identification of species in other groups was done by the authors with the aid of reference material available from NMFS.

E.J. Pullen, Chief, Coastal Ecology Branch, served as contract monitor for this report, under the general supervision of R.P. Savage, Chief, Research Division; he also assisted in the editorial review process and made arrangements for several technical aspects of manuscript preparation and publication.

Comments on this publication are invited.

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TED E. BISHOP

Colonel, Corps of Engineers
Commander and Director

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CONVERSION FACTORS, U.S. CUSTOMARY TO METRIC (SI) UNITS OF MEASUREMENT

U.S. customary units of measurement used in this report can be converted to metric (SI) units as follows:

Multiply	by	To obtain
inches	25.4	millimeters
	2.54	centimeters
square inches	6.452	square centimeters
cubic inches	16.39	cubic centimeters
feet	30.48	centimeters
	0.3048	meters
square feet	0.0929	square meters
cubic feet	0.0283	cubic meters
yards	0.9144	meters
square yards	0.836	square meters
cubic yards	0.7646	cubic meters
miles	1.6093	kilometers
square miles	259.0	hectares
knots	1.852	kilometers per hour
acres	0.4047	hectares
foot-pounds	1.3558	newton meters
millibars	1.0197×10^{-3}	kilograms per square centimeter
ounces	28.35	grams
pounds	453.6	grams
	0.4536	kilograms
ton, long	1.0160	metric tons
ton, short	0.9072	metric tons
degrees (angle)	0.01745	radians
Fahrenheit degrees	5/9	Celsius degrees or Kelvins ¹

¹To obtain Celsius (C) temperature readings from Fahrenheit (F) readings, use formula: $C = (5/9) (F - 32)$.

To obtain Kelvin (K) readings, use formula: $K = (5/9) (F - 32) + 273.15$.

BENTHIC COMMUNITY RESPONSE
TO DREDGING BORROW PITS,
PANAMA CITY BEACH, FLORIDA

by
Carl H. Saloman, Steven P. Naughton,
and
John L. Taylor

I. INTRODUCTION

1. Background.

On the gulf coast of northwestern Florida, at Panama City Beach, major environmental alterations over the past 10 years have provided an exceptional opportunity to determine the degree and duration of these alterations associated with the practice of dredging and beach nourishment. Historically, these events have included the development of several engineering plans, the intervention of a major hurricane, an emergency dredging and beach restoration program, and several ecological studies related to disturbances caused by both the hurricane and the dredging.

In 1970, the Senate Committee on Public Works acknowledged an urgent need for beach erosion control and hurricane protection at Panama City Beach. This critical situation was referred to the U.S. Army Engineer District, Mobile, for study. In 1975, the Mobile District completed a feasibility report that contained recommendations for beach nourishment and maintenance along 29.8 kilometers of shoreline from the entrance to St. Andrew Bay, west to Philips Inlet (Wilson, 1975). During preparation of the report, the U.S. Army Coastal Engineering Research Center (CERC) sponsored a research program to determine ecological changes that could be expected from the dredging and coastal construction work. This investigation, which was conducted by the National Marine Fisheries Service (NMFS) between November 1974 and October 1975, involved the study of hydrology, sediments, and benthic fauna at two offshore stations, and at five stations on each of nine nearshore transects. Emphasis was placed on diversity, abundance, and distribution of bottom-dwelling invertebrates which are directly affected by dredging and redistribution of sediments (Saloman, 1976).

Before this investigation was completed, Hurricane Eloise struck Panama City Beach (25 September 1975). Winds up to 185 kilometers per hour and seas estimated at 9 meters caused severe erosion and extensive property damage (Saloman, 1976; Salsman and Ciesluk, 1978). In winter months that followed, high wind and waves associated with periodic cold fronts caused further shoreline erosion.

In anticipation of the storm, and realizing the opportunity to measure large-scale environmental changes alongshore, NMFS conducted an intertidal benthic survey that consisted of faunal sampling before the storm and during a 1-month period after the storm. The pattern of faunal disruption and recovery recorded in this unique study provided considerable insight into the sequence of population changes to be expected in the proposed beach nourishment program (Saloman and Naughton, 1977).

In the next year (July-August 1976), the Corps of Engineers funded an emergency dredging operation to restore the most ravaged beach areas and established berms to provide temporary protection against storms normally occurring during fall and winter seasons. Numerous borrow areas, 305 to 610 meters offshore (6- to 9-meter depth) were dredged and about 306,000 cubic meters of sand was pumped ashore at 23 distribution sites (U.S. Army Engineer District, Mobile, 1976).

At the same time, NMFS again conducted studies of the nearshore environment over a 3-month period prior to dredging, during dredging, and for about 6 months after dredging was completed. Benthic sampling sites were selected in nourishment areas and in unrestored areas. The location of the three nourishment areas coincided with the location of benthic base-line data collected in 1974 (Saloman and Naughton, unpublished data).

Based on emergency nourishment experience and the analysis of the Hurricane Eloise data collected, the Mobile District revised original plans for shoreline protection and maintenance at Panama City Beach. The revised plan included berm enlargement on the beach front and additions to height and width of backbeach dunes. Consequently, the volume of sand estimated for original construction was increased from 4 to 8 million cubic meters; and borrow areas formerly selected at 9-meter depths were relocated seaward along the 18-meter bottom contour (Wilson, 1976).

Onshore, the environmental impact of this latest plan can probably be predicted to a high degree of accuracy on the basis of findings in NMFS beach surveys in 1974 and 1976. Briefly stated, the results of these investigations showed that shallow, subtidal and intertidal faunas recover rapidly following major disturbances (natural or man-induced). A more recent study funded by CERC provides additional information on the long-term environmental effects of dredging in offshore borrow areas at Panama City Beach (Culter and Mahadevan, 1982). A study of short-term environmental effects of dredging in offshore borrow areas at Panama City Beach is the subject of the present report.

2. Purpose.

This report provides a comprehensive analysis of benthic data from studies designed to show short-term environmental effects of offshore dredging during the emergency restoration project at Panama City Beach in July-August 1976.

It is based on comparisons of hydrological, sedimentological, and biological data from collections at stations A and B in base-line studies that began in 1974 (Saloman, 1976), and from control and experimental samples taken by NMFS in undredged bottom and borrow areas over a 20-month period between April 1976 and November 1977.

II. STUDY AREA

Panama City Beach is located on the northwestern gulf coast of Florida about 145 kilometers east of Pensacola. The study area covers 35 kilometers and extends from West Pass at the entrance to St. Andrew Bay, to Philips Inlet (Fig. 1). The beach's sugarlike sand and exceptionally clear water are major attractions for about 2 million visitors annually. Tourism is a great economic asset and most of the beach has been developed to accommodate tourists and provide various types of recreation.

Regional meteorological and oceanographic conditions were described by Salsman and Ciesluk (1978). Climate is humid and subtropical. Average summer and winter air temperatures are 28° and 12° Celsius, with about the same water temperatures at respective seasons. Winds are 20 kilometers per hour or less at most times, and rarely exceed 37 kilometers per hour. From spring through late summer, the net wind direction is southerly, but between September and January, the direction shifts to northerly. Waves are usually about 0.9 meter; tides are diurnal, and tidal amplitude is normally about 0.6 meter; and tidal currents are generally below 4 kilometers per hour. However, during tropical storms and ahead of cold fronts, strong winds off the gulf produce waves, tides, and currents far greater than average. Even in less severe weather, beach sand is easily eroded because of its fine texture (0.1- to 0.2-millimeter median diameter). Seaward, a series of parallel sandbars protects the beach to some extent, but beyond, the featureless bottom slopes rather quickly to a 15-meter depth at 1.6 kilometers from shore. At greater depths, sediments are somewhat coarser and widely scattered limestone reefs appear in low relief.

III. SAMPLING STATIONS AND RATIONALE

The sampling data in this report were collected in about 9 meters of water at stations located offshore of Panama City Beach. As a matter of convenience, and for clarity, these stations have been separated into three groups since there were differences in their locations, sampling procedures, and objectives.

The first group includes stations A and B (Fig. 2) of the preconstruction investigation of 1974-75. Station A was located seaward of the Fiesta Motel about midway between West Pass and Philips Inlet. Station B was seaward of the Roundtower Motel, which is just east of Philips Inlet. The sampling schedule at these stations consisted of an initial collection in November 1974, and subsequent quarterly collections in February, May, and August 1975. Both were sampled before beach nourishment to determine seasonal environmental conditions (base-line data) in the zone designated for dredging (Saloman, 1976).

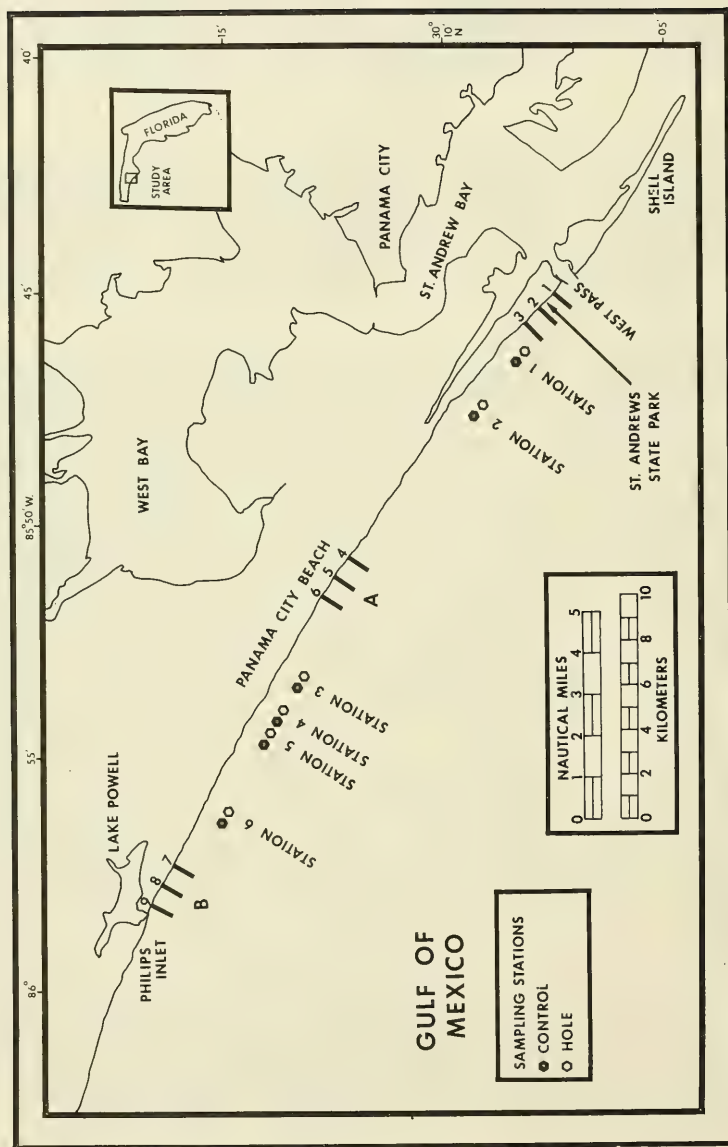


Figure 1. Study area at Panama City Beach, Florida, showing stations 1 to 6, July 1977.

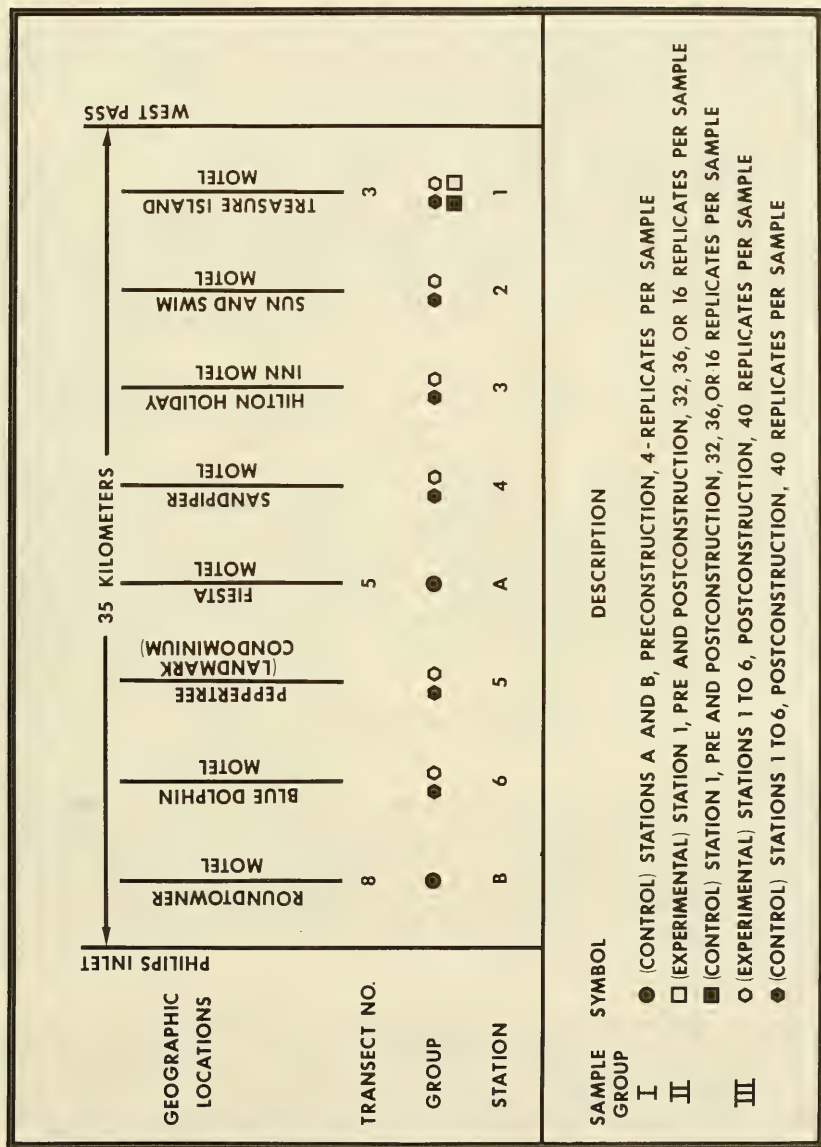


Figure 2. Schematic representation of sampling plan, Panama City, Florida.

The second group contains station 1 (Fig. 2), located seaward of Treasure Island Motel (near the eastern end of the study area), which had two collecting areas--one at the borrow site and the other a short distance away on undredged bottom. Samples were taken from the designated borrow site before dredging in April, June, and July 1976. Then 2 days after dredging (10 August 1976), concurrent sampling was started inside and outside the borrow pit. Sampling in both the pit (experimental samples) and adjacent to it (control samples) continued on a weekly schedule for 1 month. Samples were taken twice the next month, and then monthly thereafter until the study was concluded in November 1977. These samples were collected to record diversity and abundance of benthic fauna at a specific dredge site before dredging started, and then, over time, to compare population characteristics of control samples with experimental samples.

The third group includes stations 1, 2, 3, 4, 5, and 6 for one-time sampling only inside and outside borrow pits during July 1977--about 12 months after dredging (Fig. 2). The six stations were located seaward of the following landmarks: station 1, Treasure Island Motel; station 2, Sun and Swim Motel; station 3, Hilton Holiday Inn, station 4, Sandpiper Motel; station 5, Peppertree Condominium (now Landmark Condominium); and station 6, Blue Dolphin Motel. These collections provided a comparison of fauna in control and experimental samples from a number of borrow pits for an evaluation of short-term recovery within a period of 1 year. Throughout this report, samples from stations A and B, and preconstruction samples from station 1, are referred to as baseline or control samples; all other samples from outside borrow pits are called control samples, and all samples from within borrow pits are designated experimental samples.

IV. SAMPLING AND ANALYTICAL PROCEDURES

1. Hydrology.

Surface water temperature and salinity measurements were recorded in each sampling period at stations A and B, and on a monthly schedule over the duration of sampling at station 1. Temperature was taken using a hand-held, mercury bulb thermometer graduated in Celsius degrees. Salinity, in parts per thousand, was determined with a Goldberg temperature-compensated refractometer (American Optical Co., Model No. 10419).

2. Sedimentology.

Sediment samples were collected to determine textural features, statistical properties, and carbon chemistry. Textural parameters included weight percentages of granules, sand, and silt-clay. Mean grain size, standard deviation (as a measure of sorting), skewness, and kurtosis were calculated and interpreted according to the system described by Folk (1974). The carbon analyses included total carbon, total organic carbon, and total carbonate carbon.

Collections were limited to surface samples that included the upper 10 centimeters of sediment. Sediments were collected in standard 8-ounce, screw-cap jars; all samples were stored frozen prior to analyses. Detailed analytical methods are described by Saloman (1976).

For textural analyses, sediment samples were sieved at 1-phi intervals in nested screens placed on a mechanical shaker. Fraction weights were recorded to the closest milligram and tabulated as weight percentages. No hydrometer or pipette determinations were required because silt-clay percentages were quite low. Based on grain-size distribution curves, formulas introduced by Folk (1974) were used to calculate statistical properties. Carbon analyses were made using a Leco 750-100, 90-second carbon analyzer.

Additionally, divers recorded observations of sediment inside and outside the borrow pit at station 1. These observations were made on a regular basis during the first postconstruction collection, and in subsequent collections, until the study ended.

3. Benthos.

At all collecting points, infauna was sampled with a hand-operated plug sampler (box corer) that covered a surface area of 1/64 square meter and penetrated the bottom to a depth of 23 centimeters (Saloman, 1976). Replicate samples were taken at each site, but the number was not always the same for each of the three station groups. At stations A and B, four replicates composed a sample (preconstruction base-line study of 1974-75). At station 1, the first collection contained 32 replicates (19 April 1976), while second and third preconstruction samples each consisted of 36 replicates. After dredging, however, both control and experimental samples from station 1 each included 16 replicates. Finally, in the one-time collection at stations 1 to 6, 1 year after dredging, control and experimental samples were each composed of 40 replicates. The decision to take more than 4 replicates in most samples was somewhat arbitrary, since sampling to develop a species rarefaction curve showed that 4 plugs comprised an adequate qualitative and quantitative sample of the nearshore benthos (Saloman, 1976). For reference, a schematic representation of the overall sampling plan was prepared to show geographic relationships among stations within the study area, landmarks along the shore, pertinent transect locations from studies started in 1974, and the sampling locations of borrow pits and undredged bottom studied between April 1976 and July 1977 (Fig. 2).

All benthic samples were taken by scuba divers and sieved on shipboard in a 0.3-meter diameter screen of 0.7 millimeter mesh. Material remaining on the screen was preserved with 10-percent seawater formalin in standard 2-quart, screwcap jars. Rose bengal dye was added to the formalin to stain organisms and facilitate their subsequent separation from debris. In the laboratory,

each collection was resieved under tapwater and all specimens from respective samples were stored in 70-percent isopropanol for final sorting, taxonomic determinations, and species counts. The 0.7 millimeter screen was used instead of a conventional 0.5 millimeter one because the former facilitated sieving operations and retained a percentage of infauna that was shown to be very nearly equivalent to that sampled by the smaller mesh size.

As in Saloman's (1976) work, biological data presented here include a species checklist and individual station listings that show species occurrence and frequency, together with calculations for number of individuals per square meter and the Shannon-Weaver index of faunal diversity (H'). Also, as a measure of relative species dominance, equitability (J') was computed for each station (Pielou, 1975). Two other statistical procedures were also employed. The first, Morisita's Index (Morisita, 1959; Bloom, 1981), provided a numerical method of comparing faunal similarity between comparable sets of control and experimental samples, and was used to develop similarity matrices and classification diagrams that graphically show faunal relationships based on station data for diversity and abundance.

The second procedure, a stability analysis (Bloom, 1980), is a multivariate, nonparametric statistical and geometric procedure that converts biotic data from control and experimental samples into communities that can be represented mathematically. For one representation all base-line and control data were used to define numerical characteristics of a preconstruction community cluster that has a central point, or centroid, and certain specific spatial limits. In the first stability analysis, the distance from the centroid to control and experimental samples was used to determine variability among samples from undredged and dredged bottoms. In the second analysis, community clusters calculated for experimental samples were compared to the preconstruction cluster, in postconstruction sequence. When a boundary or an experimental cluster met the limit of the preconstruction cluster, faunal recovery was accepted. Experimental collections from station 1, where sampling over time was done, were the only borrow pit samples used in this analysis.

V. RESULTS

1. General.

The findings in this section are based on the detailed information given in Appendixes A to F. Appendix A lists abiotic parameters by station. Appendix B is a checklist of all organisms collected at offshore stations from November 1974 to November 1977. Appendix C contains all biological station data and indices of diversity (H') and equitability (J'). Appendix D (Similarity Matrices) and E (Classification Analyses and Dendrograms) are both based on Morisita's index of faunal similarity. Appendix F is a graphic representation of the two stability analyses. The first graph shows comparative variability among control and experimental samples when compared with the centroid of a community cluster calculated from all base-line and control samples. The second

is a stability plot for experimental samples from station 1 showing the post-construction time lapse before faunal recovery appears evident.

2. Hydrology.

Water temperature and salinity data from the 1974-75 sampling at stations A and B were compared to data from station 1 sampled during similar months in 1976-77 (Table 1). Both sets of data show normal seasonal trends in water temperature, except for one abnormally low value of 9° Celsius recorded in February 1977.

Salinity was low at stations A and B in August 1975, but salinity during other months was 32 parts per thousand or higher, and similar to station 1 records (Table 1). Appreciable declines in salinity apparently coincide with periods of seasonally heavy rainfall.

3. Sedimentology.

The influence of dredging on sediment composition was determined by analyses of base-line and control samples, compared to samples taken from borrow pits. Base-line data came from seasonal sediment collections at stations A and B, and from those taken before dredging at station 1 in April, June, and July 1976. Control data were available from samples outside the borrow pit at station 1, and from samples collected in an undredged bottom at stations 1 to 6 in July 1977. Data from experimental samples also came from periodic collections at station 1, and from borrow pit collections in the single survey in July at stations 1 to 6.

Textural, statistical, and chemical properties of base-line samples (Table 2) were used to describe natural features of offshore sediments, since these samples were collected in all seasons prior to dredging at eastern, central, and western locations within the study area (see App. A).

a. Texture. Sediment composition was about 99-percent sand, and both granules and silt-clay size particles contributed less than 1 percent.

b. Statistical Properties. Values for mean grain size, standard deviation, skewness, and kurtosis classified these sediments as fine sand that is moderately well to well sorted, symmetrical to coarsely skewed, and leptokurtic (sorted better in the center than at the ends of grain size distribution curves).

c. Carbon Chemistry. Total carbon content of base-line samples was less than 0.30 percent. Carbonate carbon contributed somewhat more to this total than organic carbon, indicating that most carbon occurred in the form of shell fragments rather than as organic deposits.

For station 1, when these features were compared to control and experimental samples, noteworthy differences appeared only in experimental samples.

Table 1. Water temperature and salinity at stations A and B before the 1974-75 dredging, and at station 1 before and after the 1976 dredging for beach nourishment at Panama City Beach, Florida.

Station	Date	Water Temp. (°C)	Salinity (ppt)
1974			
A	18 Nov.	21.0	34.5
B	18 Nov.	20.8	34.3
1975			
A	20 Feb.	17.4	34.4
B	20 Feb.	17.5	33.9
A	20 May	26.2	32.2
B	20 May	26.0	32.2
A	12 Aug.	28.3	26.2
B	12 Aug.	28.5	26.1
1 (before) 1976			
	Apr.	20.2	33.3
	May	20.2	34.9
	June	25.7	32.3
	July	28.0	33.3
	Aug.	27.0	35.3
	Sept.	27.8	32.6
	Oct.	24.9	33.1
	Nov.	18.0	33.2
	Dec.	12.5	34.1
1 (after) 1977			
	Jan.	12.4	33.3
	Feb.	9.0	34.3
	Mar.	14.3	34.4
	Apr.	22.4	33.5
	May	21.8	34.3
	June	25.7	32.1
	July	27.5	33.6
	Aug.	29.0	35.3
	Sept.	27.7	32.6
	Oct.	25.0	33.1
	Nov.	-	-

Table 2. Textural and statistical properties of sediments in control (undredged bottom) and experimental (borrow pit) samples taken 1 year after dredging at stations 1 to 6 along the 9-meter depth contour off Panama City Beach, Florida, July 1977.

Station	Textural			Statistical			
	Granule (pct)	Sand (pct)	Silt-clay (pct)	Mean grain size (phi)	Std. dev. (phi)	Skewness	Kurtosis
1							
Control		99.70	0.30	2.45	0.45	-0.19	1.18
Experimental		98.64	1.36	2.50	0.53	-0.00	1.39
2							
Control		99.65	0.35	2.45	0.44	-0.18	1.15
Experimental		99.80	0.20	2.43	0.48	-0.19	1.21
3							
Control		99.88	0.12	2.21	0.62	-0.32	1.11
Experimental	0.92	98.96	0.11	1.75	1.06	-0.46	0.82
4							
Control		99.86	0.14	2.24	0.61	-0.31	1.16
Experimental	0.08	99.81	0.11	2.01	0.83	-0.41	0.95
5							
Control		99.86	0.14	2.31	0.59	-0.33	1.34
Experimental		99.86	0.14	2.26	0.58	-0.28	1.11
6							
Control	0.34	99.52	0.14	2.11	0.76	-0.40	1.09
Experimental	0.14	99.76	0.11	2.31	0.61	-0.34	1.39

The particle-size distribution of sand was below 99 percent in experimental samples from September, October, and November 1976, and from January, June, July, August, and September 1977. The lowest level (92 percent) was recorded in September 1976. Other low values were only in the 97- to 98-percent range. Granule-size particles were consistently under 1 percent, but 11 experimental samples contained more than 0.30-percent silt-clay. The highest value for the silt-clay fraction was 8.1 percent in a sample collected on 21 September 1976. Values of more than 1-percent silt-clay were also recorded in another September sample as well as in October and November 1976, and again in January, June, July, August, and September 1977.

Mean grain size for experimental samples did not range below fine sand. Sorting categories changed for two experimental samples. In the September 1976 sample, sorting was only moderate; in the May 1977 sample, it proved to be extremely poor. For skewness, five experimental samples exhibited an uncharacteristic trend that placed them in classifications of fine skewed to strongly fine skewed. The single sample classified as strongly fine skewed was obtained in September 1976; the others were collected in September and October 1976, and August and September 1977. Deviation from the normal leptokurtic condition was recorded for five experimental samples. Values corresponding to mesokurtic were recorded in August 1976, and April and May 1977. Values in the very leptokurtic range were recorded in January and June 1977.

A carbon content percentage greater than the base-line average was recorded in 12 experimental samples; however, this number of samples may be low since no carbon analyses were made after the June 1977 sampling. The highest recorded value was 2.32 percent for the September 1976 sample. Other slightly elevated values ranged between 0.31 and 1.21 percent. Among these 12 samples, the proportion of organic carbon to carbonate carbon was higher for carbonate in 6 samples, higher for organic in 5, and in 1, the ratio was nearly even.

Sediment data for control and experimental samples collected at the six stations in July 1977 has been tabulated for comparison (Table 2). These analyses include only textural and statistical properties; no information on carbon chemistry was available.

At the six stations, granule-size particles were present in only four samples, and three of these came from borrow pits at stations 3, 4, and 6. The single control sample containing granules also came from station 6, and the overall granule distribution was under 1 percent. Sand content was about 99 percent in all collections. For the silt-clay fraction, only one value was considered abnormally high and that was recorded for the experimental sample from station 1 (1.36 percent).

With the one exception of medium sand (station 3, experimental), all samples fell into the classification of fine sand. Calculations for sorting showed that 9 of 12 samples were well to moderately well sorted. Other classifications included moderately sorted (station 4, experimental and station 6, control) and

poorly sorted (station 3, experimental). Skewness values were characteristic for five samples (symmetrical to coarsely skewed), and the other seven samples fit the strongly coarse-skewed classification and were about equally divided between the control and experimental samples. The normal, or leptokurtic condition, was found in nine samples. Of the remaining three, the experimental sample from station 4 and the control sample from station 6 were mesokurtic, while the experimental sample from station 3 was platykurtic.

Although sedimentological conditions in some experimental samples varied from the base-line criteria until late 1977, large variations were confined to borrow pit sediments at station 1 within 2 months after dredging. During that period, properties which may have been limiting to benthos were high silt-clay and organic carbon content.

Diver reports between 18 August (10 days after dredging) and 4 October 1976, stated that the station 1 borrow pit was 3 to 5 meters deep and had very dark surface sediments of an extremely soft, silty texture. Initially no surface signs of benthic life (burrows, mounds, or trails) were reported. Within the next month, sediments had become firmer and sandier; signs of infauna activity were conspicuous, crabs and other epibenthos were numerous, and a variety of fishes was observed. After 12 months, and on the last dive at station 1 in November 1977, divers concluded that borrow pits had filled to within a meter of surrounding bottom, and that sediments inside were still finer, darker, and less compact than sediments outside, but marine life appeared similar in control and experimental areas.

4. Benthos.

The checklist of organisms in Appendix B contains about 362 organisms at the species level, representing 14 invertebrate phyla and the vertebrate class, Osteichthyes (bony fishes). Of this number, Annelida had 152 species (42 percent), Arthropoda had 108 (30 percent), and there were 69 mollusks (19 percent). The remaining 33 species (9 percent) were divided among 11 groups: Cnidaria, Platyhelminthes, Nemertinea, Nematoda, Phoronida, Brachiopoda, Sipunculida, Echiurida, Echinodermata, Hemichordata, and Cephalochordata.

Species counts from each station showed a total of 58,068 individuals collected. On a percentage basis, more than half were annelids (55 percent), 19 percent were mollusks, 18 percent were arthropods, Cnidaria and Cephalochordata each accounted for 2 percent, Nematoda and Echinodermata both had 1 percent, and the other seven groups contained 2 percent, collectively. For the three major phyla, species that were numerically dominant in one or more of the base-line or control site collections are given in Table 3.

All station data for richness, quantitative abundance, diversity (H'), and equitability (J') were tabulated by base-line, control, and experimental sample categories (Tables 4, 5, and 6). Graphic analyses of Morisita's Index and stability are given in Appendixes D, E, and F.

Table 3. Species in dominant phyla (listed alphabetically) that were numerically abundant at one or more base-line or control stations offshore Panama City Beach, Florida, November 1974 to November 1977.

MOLLUSCA

<i>Acteocina candei</i>	<i>Natica pusilla</i>
<i>Cylichnella bidentata</i>	<i>Periploma margaritaceum</i>
<i>Diastoma varium</i>	<i>Pitar simpsoni</i>
<i>Ervilia concentrica</i>	<i>Sirigilla mirabilis</i>
<i>Lepton</i> sp.	<i>Tellina texana</i>
<i>Lucina multilineata</i>	<i>Tellina versicolor</i>

ANNELIDA

<i>Armandia agilis</i>	<i>Nephtys bucera</i>
<i>Armandia maculata</i>	<i>Nephtys picta</i>
<i>Brania wellfleetensis</i>	<i>Onuphis eremita oculata</i>
<i>Ceratonereis irritabilis</i>	<i>Onuphis nebulosa</i>
<i>Chone</i> sp.	<i>Owenia fusiformis</i>
<i>Dispio uncinata</i>	<i>Paraonides lyra</i>
<i>Eteone lactea</i>	<i>Paraonis fulgens</i>
<i>Glycera americana</i>	<i>Paraprionospio pinnata</i>
<i>Goniada littorea</i>	<i>Prionospio cristata</i>
<i>Haploscoloplos foliosus</i>	<i>Rullierinereis mexicana</i>
<i>Lumbrineris cruzensis</i>	<i>Scolecopsis texana</i>
<i>Lumbrineris tenuis</i>	<i>Scoloplos armiger</i>
<i>Lumbrineris tetraura</i>	<i>Spio pettiboneae</i>
<i>Magelona riojai</i>	<i>Spiophanes bombyx</i>
<i>Magelona</i> sp.	Unidentified Oligochaete
<i>Mesochaetopterus sagittarius</i>	

ARTHROPODA

<i>Acanthohaustorius</i> sp.	<i>Monoculodes</i> sp.
<i>Albunea paretii</i>	<i>Oxyurostylis smithi</i>
<i>Ampelisca abdita</i>	<i>Processa hemphilli</i>
<i>Ampelisca verrilli</i>	<i>Protohaustorius</i> sp.
<i>Cyclaspis varians</i>	<i>Pseudohaustorius</i> sp.
<i>Cyclaspis</i> sp.	<i>Pseudoplatyschnopus</i> sp.
<i>Erichthonius</i> sp.	<i>Synchelidium</i> sp.
<i>Lepidactylus</i> sp.	Unidentified Ostracod

Table 4. Species richness, abundance, diversity (H'), and equitability (J') and base-line stations offshore Panama City Beach, Florida, November 1974 to July 1976.

Station	Date	Replicates per sample (No.)	Species (No.)	Individuals per m ² (No.)	H'	J'
A	Nov. 1974	4	15	2,064	1.9	0.7
	Feb. 1975		27	3,008	2.2	0.7
	May 1975		41	4,784	2.8	0.8
	Aug. 1975		43	3,888	3.1	0.8
	Avg.		32	3,436	2.5	0.8
	Range		15 to 43	2,064 to 4,784	1.9 to 3.1	0.7 to 0.8
B	Nov. 1974	4	27	3,808	1.9	0.6
	Feb. 1975		26	3,984	2.3	0.7
	May 1975		28	5,344	2.3	0.7
	Aug. 1975		47	5,248	3.0	0.8
	Avg.		32	4,596	2.4	0.7
	Range		26 to 47	3,808 to 5,344	1.9 to 3.0	0.6 to 0.8
1	Apr. 1976	32	67	1,506	2.5	0.6
	June 1976	36	94	1,902	3.5	0.8
	July 1976	36	120	7,178	3.1	0.6
	Avg.		94	3,529	3.0	0.7
	Range		67 to 120	1,506 to 7,178	2.5 to 3.5	0.6 to 0.8
Overall						
Avg.			49	3,883	2.6	0.7
Range			15 to 120	1,506 to 7,178	1.9 to 3.5	0.6 to 0.8

Table 5. Species richness, abundance, diversity (H'), and equitability (J') at control stations offshore Panama City Beach, Florida, August 1976 to November 1977.

Station	Date	Replicates per sample (No.)	Species (No.)	Individuals per m ² (No.)	H'	J'
1	10 Aug. 1976	16	72	5,576	2.4	0.6
	18 Aug. 1976		80	5,500	2.8	0.6
	24 Aug. 1976		84	4,836	2.9	0.6
	1 Sept. 1976		74	3,080	2.9	0.7
	8 Sept. 1976		83	2,260	3.4	0.8
	21 Sept. 1976		89	3,128	3.0	0.7
	4 Oct. 1976		87	3,116	3.3	0.7
	18 Oct. 1976		77	3,912	2.6	0.6
	1 Nov. 1976		67	3,020	2.6	0.6
	1 Dec. 1976		74	3,080	3.0	0.7
	5 Jan. 1977		56	1,724	3.0	0.8
	2 Feb. 1977		53	1,516	3.1	0.8
	1 Mar. 1977		64	2,360	3.1	0.7
	1 Apr. 1977		57	2,632	3.1	0.8
	2 May 1977		55	2,572	2.7	0.7
	1 June 1977		55	1,976	3.3	0.8
	5 July 1977		64	3,264	3.1	0.7
	2 Aug. 1977		80	5,168	3.0	0.7
	1 Sept. 1977		70	3,572	2.9	0.7
	3 Oct. 1977		64	2,112	2.8	0.7
	1 Nov. 1977		72	2,904	3.0	0.7
Avg.			70	3,205	3.0	0.7
Range			53 to 89	1,515 to 5,576	2.4 to 3.3	0.6 to 0.8
1	11 Jul. 1977	40	99	3,365	3.2	0.7
2	15 Jul. 1977	40	112	3,750	3.4	0.7
3	25 Jul. 1977	40	105	4,326	3.2	0.7
4	26 Jul. 1977	40	74	4,050	2.9	0.7
5	27 Jul. 1977	40	57	1,408	3.0	0.7
6	28 Jul. 1977	40	66	2,483	3.0	0.7
Avg.			86	2,817	3.1	0.7
Range			57 to 112	1,408 to 4,326	2.9 to 3.4	0.6 to 0.8
<u>Overall</u>						
Avg.			74	3,119	3.0	0.7
Range			53 to 112	1,408 to 5,576	2.4 to 3.4	0.6 to 0.8

Table 6. Species richness, abundance, diversity (H'), and equitability (J') at experimental stations offshore Panama City Beach, Florida, August 1976 to November 1977.

Station	Date	Replicates per sample (No.)	Species (No.)	Individuals per m ² (No.)	H'	J'
1	10 Aug. 1976	16	20	324	2.0	0.7
	18 Aug. 1976		38	976	2.2	0.6
	24 Aug. 1976		60	2,136	2.6	0.6
	1 Sept. 1976		38	1,612	2.1	0.6
	8 Sept. 1976		47	1,344	2.7	0.7
	21 Sept. 1976		45	924	2.9	0.8
	4 Oct. 1976		85	2,440	3.7	0.8
	18 Oct. 1976		46	1,124	2.9	0.8
	1 Nov. 1976		55	2,044	2.5	0.6
	1 Dec. 1976		54	3,540	2.3	0.6
	5 Jan. 1977		36	2,192	1.8	0.5
	2 Feb. 1977		44	2,212	1.9	0.5
	1 Mar. 1977		62	3,732	2.6	0.6
	1 Apr. 1977		52	3,144	2.2	0.6
	2 May 1977		54	1,656	2.8	0.7
	1 June 1977		69	3,256	3.2	0.8
	5 July 1977		49	1,964	2.7	0.7
	2 Aug. 1977		70	2,920	3.2	0.8
	1 Sept. 1977		32	440	2.9	0.8
	3 Oct. 1977		61	1,588	3.1	0.8
	1 Nov. 1977		54	1,220	2.9	0.7
Avg. Range		51 20 to 85	1,942 324 to 3,732	2.6 1.8 to 3.7	0.7 0.5 to 0.8	
1	11 July 1977	40	81	2,422	2.9	0.7
2	15 July 1977	40	114	3,862	3.5	0.7
3	25 July 1977	40	98	4,037	3.3	0.7
4	26 July 1977	40	94	2,587	3.4	0.8
5	27 July 1977	40	80	2,644	2.9	0.7
6	28 July 1977	40	83	3,034	3.4	0.8
Avg. Range		92 80 to 114	3,101 2,422 to 4,037	3.2 2.9 to 3.5	0.7 0.7 to 0.8	
<u>Overall</u>						
Avg. Range		60 20 to 114	2,200 324 to 4,037	2.8 1.8 to 3.7	0.7 0.5 to 0.8	

a. Richness. The data from base-line and control samples indicate that species richness followed an irregular seasonal pattern. Generally, numbers of species were lowest in a period between late fall and spring, and showed one or more peaks sometime between midsummer and late fall.

For base-line collections (Table 4), the number of species per sample averaged 49 and ranged between 15 (November) and 120 (July). The average for control samples was 74 and ranged between 53 (February) and 112 (July). Intermediate values were recorded for experimental samples. In these collections, average number of species per sample was 60; the low, which was only 20, occurred in the first collection after dredging; the high was 114, recorded in July 1 year later.

On a date-to-date comparison at station 1 and stations 1 to 6, richness data for control and experimental samples (Tables 5 and 6) gave somewhat conflicting results. For time-sequence samples at station 1, richness data showed incomplete borrow pit recovery as numbers of species prove to be consistently higher for controls on every occasion except 1 June 1977. This was reflected in the average of 70 and the range between 53 and 89 for control samples, as opposed to an average of 51 and a range of 20 to 85 for experimental samples. Even so, a degree of recovery was evident at station 1 a few weeks after dredging, and richness data for control and experimental samples first approximated one another by October 1976. Species recorded in the early stages of recovery at station 1 are of special interest because they include survivors, migrators, and perhaps the first recruits (Table 7).

Contrary to indications of the incomplete recovery discussed above, results for richness in the one-time sampling at stations 1 to 6 showed that borrow pits generally supported more species than undredged bottom at 1 year. This was true for stations 2, 4, 5, and 6. Findings at station 1 were contradictory, and at station 3, species in experimental collections were outnumbered by those in control collections. The number of species in control samples averaged 86 and ranged between 57 and 112; the number for experimental samples was higher with an average of 92 and a range between 80 and 114.

Even though richness data are somewhat inconsistent, overall they indicate that faunal recovery began rapidly and was virtually complete throughout the study area in about 1 year. Data from the one-time sampling at six stations support this statement to a greater degree than those from regular time-sequence samples at station 1.

b. Abundance. Except for a few anomalies, seasonal cycles of faunal abundance coincided with periods of low and high species diversity; i.e., fewer animals were recorded in winter collections, and peak numbers generally occurred at various times between March and December. In base-line samples, numbers of individuals per square meter of bottom averaged 3,883 and ranged from 1,506 (April) to 7,178 (July). The average for control samples was 3,119, with a range between 1,408 (July) and 5,576 (August). Experimental samples had an

Table 7. Species and their frequency of occurrence in the first 3 weeks after dredging at station 1 offshore Panama City Beach, Florida, August 1976.

Species	No. of individuals (by date)		Species	No. of individuals (by date)	
	10 Aug.	24 Aug.		10 Aug.	24 Aug.
Cnidaria			ANNELIDA (Cont'd)		
Unid. sp.		1	Polydora tetrabranchia	1	114
PLATYHELMINTHES			Prionospio oriata	43	1
Unid. sp.		2	Rullieriopsis mexicana	1	21
NEMERTINEA			Scoloplos armiger	5	1
Unid. sp.	1	3	Scoloplos rubra		19
NEMATODA			Spio pelibonaea		1
Unid. sp.	2	3	Spiophanes bombyx		
BRACHIOPODA			SIPUNCULIDA		
Gorilla pyramidalis		1	Goffingia trichocephala	1	
MOLLUSCA			ARTHROPODA		
Caecum floridanum	1		Acanthausatorius sp.		1
Cardiomya costata		1	Ampeleca abdita	1	27
Lepion sp.		4	Ampeleca verrilli	3	
Lucina multilineata		1	Monoculodes sp.	1	1
Periploma margaritaceum		1	Protohausatorius sp.	4	1
Pitar simpsoni		1	Pseudohausatorius sp.	1	1
Strigilla mirabilis	3	1	Pseudoplatychnopus sp.	1	31
Tellina texana	2	9	Syncheilidium sp.	1	1
Tellina versicolor	12	18	Albunea paretii	1	1
ANNELIDA			Callinassa jamaicensis	3	1
Unid. Oligochaete		2	Petrochirus diogenes		1
Apionorapio pygmaea		2	Petrolisthes galanthius		1
Amphidion incultus	1	9	Pinnixa retinens		1
Brania wellfleetensis			Processa vicina	1	
Capitellides jonesi	1		Cyclaspis sp.		1
Cauterella sp.	1	1	Cyclaspis varians	4	2
Ceratonereis irritabilis		7	Oxyurostylis smithi	3	3
Diopatra cuprea	1	2	Nebalia sp.	1	1
Eteone laticia	1	4	Unid. Mysid	2	1
Eulalia sanguinea		1	Unid. Ostracod	2	1
Glycera americana	1	3	Penaeus duarum	1	
Glycera dibranchiata		1	Sicyonia brevirostris		1
Glycera sp.		2	Sicyonia typica	1	
Glycinde solitaria		1	Acanthosquilla biminensis		
Goniada littorea	1	1	ECHINODERMATA		
Gyptis vittata	1	1	Leplosynapia sp.		1
Haploscoloplos foliosus		170	Mellita quinquesperforata	2	
Lumbrineria cruzensis	3	13	Unid. Ophiuroid		1
Malacocheilus indicus	113		HEMICHORDATA		
Mesochaetopterus sagittarius		3	Unid. Enteropneust	1	
Nephtys pica		1	CEPHALOCHORDATA		
Oruphis e. oculata		1	Branchiostoma floridae	2	32
Oruphis nebulosa	1	3	VERTEBRATA		
Paranannites speciosa		2	Lepomidium graellsii		1
Paranannites lyra	4	1	Symphurus sp.		
Paronis fulgens		2			
Paraprionospio pinnata		2			
Phyllodoce arenae		2			
			TOTAL SPECIES/INDIVIDUALS	20/81	38/24
					60/534

average of 2,200, with a range between 324 (immediately after dredging), and 4,037 1 year following dredging.

Results of periodic sampling at station 1 showed that numbers of individuals within the borrow pit first reached control sample abundance in December 1976, or about 3 months after dredging had been completed. From that time through the next four sampling periods, individuals in experimental samples were more numerous than in control samples. In May, abundance values were reversed, then again favored the experimental sample in June but remained higher in controls until collecting terminated in November 1977. Thus, a pattern of abundance indicative of faunal recovery within 3 months did not occur the following summer and fall seasons.

At stations 1 to 6, one-time sampling in July neither confirmed nor refuted evidence of recovery from time-sequence sampling at station 1. Numbers of individuals were higher in control samples at stations 1, 3, and 4, while abundance values were higher in experimental samples at stations 2, 5, and 6. A comparison of averages and ranges showed that the average number of individuals per square meter was higher for experimental samples. The low for experimental collections was well above that of control samples, and the high for experimental samples was comparable to the high for control samples. In summary, abundance values demonstrated rapid initial faunal recovery in the borrow pits that was practically complete after about 12 months.

c. Diversity (H') and Equitability (J'). For comparable pairs of control and experimental samples, species richness and abundance data were converted statistically to provide an index of diversity (H') that was used to numerically determine degrees of difference between faunal communities in undredged bottom and borrow pits. Observed differences were validated for each sample set by calculating equitability (J'), which is a mathematical measurement of how evenly organisms in a sample are divided among the various species represented (Pielou, 1975). Used in combination, values of H' and J' for base-line and control samples were regarded normal. For experimental samples, lesser values of H' and J' were attributed to dredging effects, and equal or higher values were considered evidence of faunal recovery. In base-line samples, values for both parameters were slightly higher in summer months, but control samples at station 1 showed no seasonal trend.

Average values for H' and J' in base-line samples were 2.6 and 0.7 respectively, with H' ranging from 1.9 to 3.5 and J' ranging from 0.6 to 0.8. Average H' in control samples was a little higher than base-line but J' was the same and ranges of both were within base-line limits. Among experimental collections, average H' was 2.8 and ranged between 1.8 and 3.7. The average for J' was the same as for base-line and control samples, but the low was 0.5 and the high was 0.8. Lowest values for H' and J' were recorded in January and February, and may have been a result of low water temperature as well as dredging.

When H' and J' values for control and experimental samples taken on the same data were compared, the results showed little regularity. In the series from

station 1, the first experimental sample to equal or surpass control values of H' and J' was collected in October, about 2 months after dredging. From that time until November of the next year, only 5 of 14 experimental samples showed evidence of faunal recovery. Recovery was demonstrated somewhat better by H' and J' data from the six stations sampled in July 1977. At four borrow pit stations, experimental samples had the same or higher diversity and equitability values than control samples. Also, average H' for experimental samples was higher than that for control samples, and averages of J' were the same inside and outside borrow pits.

A review of diversity and equitability results suggests the following:

(1) the benthos off Panama City Beach exhibited an annual cycle in which species diversity and abundance were greater in warm water months than in winter; (2) faunal recovery in the borrow pit at station 1 was evident to a considerable degree within 2 to 3 months after dredging, and became nearly complete by the end of sampling in November 1977; and (3) faunal recovery also occurred within 1 year of dredging in at least half of the six borrow pits sampled. To further test these inferences, sets of biotic data from control and experimental samples were evaluated using Morisita's index of faunal similarity and stability analyses. Morisita's index was first used to develop similarity matrices (App. D), and then to perform a classification analysis that arranged control and experimental samples in the form of a dendrogram according to their various degrees of likeness (App. E). Two stability analyses were made (App. F). The first shows the amount of sample variation among the control and experimental samples when compared to the centroid of the statistical faunal cluster calculated from all base-line and control data. The second shows time to faunal recovery by plotting experimental sample data against the nearest mathematical edge of the same statistical cluster.

d. Morisita's Index. Similarity matrices were calculated and displayed for time-sequence samples from station 1, and for one-time collections at stations 1 to 6 (App. D). A regular pattern of light cells (no similarity) and dark cells (high similarity) was not evident because 45 percent or more of station-to-station comparisons in both values had faunal overlap of at least 50 percent. For additional clarification, the same data were used to generate a classification analysis for presentation as a cluster diagram (App. E). In performing the necessary calculations, a Q-mode (normal) analysis was made to show faunal relationships on a station-to-station basis; no data transformations were made because doing so would obscure the dominant ranking of any faunal elements in the samples; and group averaging was selected as the sorting strategy.

For time-sequence samples, the first five (1 September 1977-experimental to 10 August 1976-experimental) show very little similarity to any other samples and were therefore considered unrelated, or outliers. These outliers include two summer-fall experimental samples taken 1 year after dredging, two similar winter collections taken about 6 months after dredging, and the first experimental sample taken a few days after the dredging. The interpretation here is that the two experimental samples 1 year after dredging are as unrelated to other samples

as the one taken immediately after dredging and the two taken in winter during the presumed period of least faunal diversity and abundance.

The next group is the first cluster and has five samples (1 April 1977-experimental to 2 May 1977-experimental). These are related by season (spring), and consist of a base-line sample and control and experimental samples collected 8 to 9 months after dredging. This mixture, and close correspondence between control and experimental samples suggests that community recovery has occurred within the borrow pit at station 1.

Then there is a single, odd sample with no close associates (1 November 1977-experimental), followed by the second cluster which contains eight samples (4 October 1976-experimental to 3 October 1977-experimental). Except for the two control samples, this group represents the experimental samples in the fall during the first 3 months after dredging.

Cluster three is considered the opposite of cluster two. It has seven samples (10 August 1976-control to 2 August 1977-control); five are post-dredging late summer and fall control samples; one a preconstruction control sample from July; and one a winter experimental sample.

Cluster four is the largest grouping and contains the next 15 samples (1 September 1977-control to 1 November 1977-control); 8 of these are fall control samples and closely associated with experimental samples taken as soon as 2 weeks after dredging, as well as in various other months. Here, the indication is that recovery at station 1 began very quickly after dredging.

The fifth and last cluster contains six samples (1 June 1977-control to 11 July 1977-experimental), which are equally divided among summer control and experimental samples taken about 1 year after dredging. Similarities between clusters one and five provide substantial evidence of faunal recovery over a postconstruction period of 8 to 11 months.

For the one-time sampling at six stations, control and experimental collections all show a high level of faunal affinity and therefore support cluster data from station 1 showing a recovery time of 1 year or less. At the time these samples were taken, the diagram shows that station location east to west along the coast was a greater clustering factor than whether or not a sample came from a dredged or undredged bottom. This is not surprising considering the daily discharge of estuarine water through West Pass and into nearshore waters at the eastern end of the study area.

e. Stability Analyses. In the first analysis, control and experimental samples are represented along the x-axis according to the number of days before and after dredging (see App. F). The y-axis is a scale of increasing distance from a statistically determined centroid, or midpoint within a community cluster represented mathematically and calculated from all available base-line and

control data. This graph shows a large variation occurring in control and experimental samples, and at corresponding times, both appear about equally distant from the centroid--distance to maximum community stability. In other words, control samples did not show close connections to the centroid, nor did they follow a seasonal or any other discernible pattern in relation to that point. Likewise, experimental samples showed no definite postconstruction deviation from the centroid, and followed no subsequent trend that might have indicated recovery. In fact, when respective sample distances from the centroid were compared in a Mann-Whitney U-Test, it was found that variations among control and experimental samples were statistically indistinguishable. The point emphasized by this analysis is that faunal variation was a major feature of both control and experimental samples.

In the second graph, the y-axis scale (labeled distance to cluster edge) refers to the edge of the statistical community (to a 95-percent confidence level) that has the centroid as its midpoint (App. F). The zero point on the scale represents the nearest edge of the community, higher positive values are increasing distances from the edge, and negative values show that the experimental sample falls inside the cluster about the centroid and cannot be statistically separated from it. Experimental samples along the x-axis are arranged by day number in postdredging sequence. The x-y plots show that an experimental sample first touched the edge of the centroid cluster on day 332 (5 July 1977), about 11 months after dredging was completed at station 1. This intersection of an experimental sample with the zero line represents time to faunal recovery. However, in several later samples, the plot again falls outside the cluster edge, and does not return until October, 14 months after dredging and 1 month before sampling ended. This situation may be due to normal sample variation.

VI. CONCLUSIONS AND DISCUSSION

Study results indicate several general conclusions related to hydrology, sediments, and benthic fauna of borrow pits and undredged adjacent bottom. Hydrological measurements included temperature and salinity, recorded quarterly at stations A and B in 1974 and 1975, and monthly at station 1 during a 20-month period between April 1976 and November 1977. Temperature data showed that regular seasonal changes are subject to rather wide year-to-year variations. Summer temperature was the most consistent, but in spring, fall, and winter, observed yearly differences were on the order of 10° Celsius. In part, fluctuations of this magnitude could conceivably mediate events responsible for changes in benthic diversity and abundance recorded in base-line, control, and experimental samples.

Salinity was characteristically high (above 32 parts per thousand); however, a low value of 26 parts per thousand, recorded in August 1975, showed that the study area may at times be influenced by estuarine water masses from St. Andrew Bay and perhaps other areas as well (Salsman and Ciesluk, 1978). As with temperature, such periodic change could be translated into adjustments in community structure. In the case of salinity, however, the effects might be

more than physiological, as foreign water masses would undoubtedly introduce a variety of immigrant organisms and potential community recruits.

A comparison of sediments from undredged bottom and borrow pits showed that most deviations from normal properties appeared in experimental samples. Major sedimentological differences could be identified due to accumulation of loosely packed, darker, and siltier sediments in the pits shortly after dredging. These distinctions became more subtle with time, and by the following year, the surface samples (in nearly filled pits) were very similar to sediments on the adjacent undisturbed sea floor. When compared to base-line samples, specific differences included the following: (1) lower sand content, (2) higher silt-clay content, (3) poorer sorting, (4) more finely skewed, (5) more variation in both directions from a leptokurtic condition, and (6) higher content of organic carbon.

In the borrow pit at station 1, altered sediment texture was confirmed by divers, and bathymetric changes were recorded over time. Depth of the cut was 3 to 5 meters below the sea floor, and sediment at the bottom initially appeared dark, soft, and silty. Within a few months this material was covered by fine sand. By the end of sampling in November 1977, the pit had filled to within a meter of the surrounding bottom. A final visual impression was that sediments were still finer and darker, but no distinction could be made between epibenthic and pelagic marine life inside and outside the borrow pit.

Dredging caused an immediate decline in the bottom community followed by a rapid postconstruction recovery that was virtually complete after 1 year. This, or even a shorter recovery period of 8 to 9 months, was supported by analyses that included: (1) species richness, (2) abundance of individuals, (3) diversity and equitability indexes, (4) Morisita's index of faunal similarity, and (5) stability analyses. It is important to again note that sampling beyond 1 year indicated lack of complete faunal recovery. This may be true, or these samples may merely be representative of large natural environmental variations that were shown to be an inherent characteristic of the shallow coastal system off Panama City Beach.

On the basis of data presented here, and complementary studies by Saloman (1976) and Culter and Mahadevan (1982), it is evident that dredging done at Panama City Beach has had no adverse long-term effect on bottom dwelling invertebrates, sediments, or water quality either along the shore or in offshore borrow areas. Short-term ecological consequences of dredging were shown to last only about 1 year, and included only minor sedimentological changes and only a small decline in diversity and abundance among bottom dwelling invertebrates. This lack of evident protracted environmental alteration is due to factors related to physical and biological oceanography within the dredging and disposal areas, and to certain engineering features of the beach restoration project. The natural factors would include the following regional characteristics: (1) moderate to high wave energy capable of eroding and transporting large volumes of sediment annually, (2) tidal, longshore, offshore, and storm generated currents that have

the same, or greater, capability of transporting nearshore sediments, (3) a geographic location that is regularly influenced by water masses and marine life of estuarine, coastal, and oceanic origins, (4) a native infauna that is diversified, abundant, and well adapted to substrate disruption and movement, and (5) a fauna that is composed of subtropical and temperate species whose active reproductive periods are limited by low water temperatures normally recorded in only 1 or 2 winter months.

As for features of the dredging project, numerous small borrow areas were used, instead of fewer larger ones, and they were dredged only to a depth of about 5 meters or less. At this level, no strata of silt, clay, or rock were uncovered so that sediment type in dredged areas remained very much like sediment in undredged areas. Also, dredging occurred in fairly shallow water where sediment transport supplied the volume of sand required to rapidly fill the borrow pits. In this connection, it is important to mention that because of their fast filling rate, and the normally low concentration of suspended solids in overlying water, no biologically detrimental quantities of silt and clay size particles accumulated in borrow areas off Panama City Beach. If anything, during the recovery period, data support the theory that within borrow pits a relative decrease in turbulence and a slight increase in organic deposits may have been responsible for figures showing a higher diversity and abundance of infauna in some dredged areas compared to figures for bottom left undisturbed.

In general, results of coastal restoration studies at Panama City Beach agree with findings for similar projects in comparable surroundings (Thompson, 1973), and along with more recent work (Turbeville and Marsh, 1982), provide additional information that can be used both locally and elsewhere to more accurately predict and evaluate environmental effects of beach nourishment operations. Nevertheless, since each coastal and estuarine area has certain unique features, it is important to continue a close association between ecological research and coastal engineering. Ideally, the research should be conducted to collect base-line data, proceed during all phases of construction, and continue after project completion for a sufficient period of time to obtain short-term (1 year) and long-term data (2 years or longer). In all instances major research emphasis should at least include: (1) factors related to geographic and meteorological conditions, (2) sedimentology, (3) water quality, (4) hydrodynamics, (5) resident and migratory biota at the bottom and throughout the water column, (6) interactions between biotic and abiotic elements, and (7) socioeconomic circumstances. By using such a research-oriented approach in future engineering projects, many important coastal resources could be protected, or even enhanced, and most environmental problem areas would be identified and avoided.

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APPENDIX A

HYDROLOGICAL AND SEDIMENT DATA BY STATION

Hydrological and sedimentological data, by station and date, for offshore stations (9-meter depth) before and after dredging--beach restoration project, Panama City Beach, Florida (November 1974 to November 1977).

HYDROLOGICAL AND SEDIMENTOLOGICAL DATA, BY STATION AND DATE, FOR OFFSHORE STATIONS (30-FOOT DEPTH) BEFORE AND AFTER DREDGING - BEACH RESTORATION PROJECT, PANAMA CITY BEACH, FLORIDA (NOVEMBER 1974 TO NOVEMBER 1977).

STATION A - CONTROL

PARAMETER	DATE				MEAN	RANGE		
	11/74	2/75	5/75	8/75				
HYDROLOGICAL								
SALINITY, ‰	34.500	34.390	32.220	26.220	31.832	26.22	TO	34.50
WATER TEMP., C	21.000	17.400	26.200	28.300	23.225	17.40	TO	28.30
SEDIMENT								
GRANULE, WT.%								
SAND	99.861	99.892	99.826		99.860	99.83	TO	99.89
SILT	0.139	0.108	0.174		0.140	0.11	TO	0.17
CLAY								
MEAN GRAIN SIZE, ϕ	2.203	2.294	2.433		2.310	2.20	TO	2.43
ST. DEVIATION, ϕ	0.715	0.595	0.499		0.603	0.50	TO	0.71
SKEWNESS	-0.156	-0.246	-0.199			-0.25	TO	-0.16
KURTOSIS	1.014	1.145	1.227		1.129	1.01	TO	1.23
T. CARBON, WT.%								
T. ORGANIC C	0.081	0.024	0.047	0.050	0.050	0.02	TO	0.08
T. CARBONATE C	0.032	0.120	0.033	0.020	0.051	0.02	TO	0.12

STATION B - CONTROL

PARAMETER	DATE				MEAN	RANGE		
	11/74	2/75	5/75	8/75				
HYDROLOGICAL								
SALINITY, ‰/o	34.330	33.890	32.170	26.110	31.625	26.11	TO	34.33
WATER TEMP., C	20.800	17.500	25.000	28.500	23.200	17.50	TO	28.50
SEDIMENT								
GRANULE, WT.%		0.502			0.502	0.50	TO	0.50
SAND	99.871	99.341	100.000	99.886	99.774	99.34	TO	100.00
SILT	0.129	0.157		0.114	0.133	0.11	TO	0.16
CLAY								
MEAN GRAIN SIZE, ϕ								
	2.213	2.169	2.330	2.447	2.290	2.17	TO	2.45
ST. DEVIATION, ϕ	0.802	0.744	0.562	0.554	0.665	0.55	TO	0.80
SKEWNESS	-0.236	-0.382	-0.234	-0.089		-0.38	TO	-0.09
KURTOSIS	1.262	1.177	1.134	1.376	1.237	1.13	TO	1.38
T. CARBON, WT.%								
T. ORGANIC C	0.106	0.334	0.082		0.174	0.08	TO	0.33
T. CARBONATE C	0.084	0.114	0.008		0.069	0.01	TO	0.11
T. CARBONATE C	0.022	0.220	0.074		0.105	0.02	TO	0.22

TREASURE ISLAND MOTEL (STATION 1) - CONTROL

PARAMETER	DATE			MEAN	RANGE		
	4/76	6/76	7/76				
HYDROLOGICAL							
SALINITY, ‰	33.330	32.330	33.280	32.980	32.33	TO	33.33
WATER TEMP., C	20.200	25.700	23.000	24.633	20.20	TO	28.00
SEDIMENT							
GRANULE, WT.%	0.156			0.156	0.16	TO	0.16
SAND	99.836			99.836	99.84	TO	99.84
SILT	0.008			0.008	0.01	TO	0.01
CLAY							
MEAN GRAIN SIZE, ϕ	2.407			2.407	2.41	TO	2.41
ST. DEVIATION, ϕ	0.470			0.470	0.47	TO	0.47
SKEWNESS	0.020			0.020	0.02	TO	0.02
KURTOSIS	1.228			1.228	1.23	TO	1.23
T. CARBON, WT.%	0.269			0.269	0.27	TO	0.27
T. ORGANIC C	0.032			0.032	0.03	TO	0.03
T. CARBONATE C	0.237			0.237	0.24	TO	0.24

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 8/10/76	DATE - EXPERIMENTAL 8/10/76
HYDROLOGICAL		
SALINITY, 00/0	35.280	35.280
WATER TEMP., C	27.000	27.000
SEDIMENT		
GRANULE, WT. %		99.856
SAND		0.144
SILT		
CLAY		
MEAN GRAIN SIZE, ϕ		2.481
ST. DEVIATION, σ		0.411
SKEWNESS		-0.137
KURTOSIS		1.017
T. CARBON, WT. %		0.347
T. ORGANIC C		0.336
T. CARBONATE C		0.011

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 8/18/76	DATE - EXPERIMENTAL 8/18/76
HYDROLOGICAL		
SALINITY, 00/0	35.280	35.280
WATER TEMP., C	27.000	27.000
SEDIMENT		
GRANULE, WT. %		0.271
SAND		99.418
SILT		0.311
CLAY		
MEAN GRAIN SIZE, ϕ		2.493
ST. DEVIATION, σ		0.530
SKEWNESS		-0.067
KURTOSIS		1.436
T. CARBON, WT. %		0.308
T. ORGANIC C		0.300
T. CARBONATE C		0.008

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 8/23/76	DATE - EXPERIMENTAL 8/23/76
HYDROLOGICAL		
SALINITY, 00/0	35.280	35.280
WATER TEMP., C	27.000	27.000
SEDIMENT		
GRANULE, WT. %		0.063
SAND		99.634
SILT		0.303
CLAY		
MEAN GRAIN SIZE, ϕ		2.501
ST. DEVIATION, σ		0.458
SKEWNESS		0.024
KURTOSIS		1.209
T. CARBON, WT. %		0.361
T. ORGANIC C		0.177
T. CARBONATE C		0.184

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 9/17/76	DATE - EXPERIMENTAL 9/17/76
HYDROLOGICAL		
SALINITY, ‰	32.610	32.610
WATER TEMP., °C	27.800	27.800
SEDIMENT		
GRANULE, WT. %	0.187	
SAND	99.672	97.108
SILT	0.141	2.892
CLAY		
MEAN GRAIN SIZE, ϕ	2.323	2.747
ST. DEVIATION, ϕ	0.558	0.587
SKEWNESS	-0.281	0.285
KURTOSIS	1.189	1.115
T. CARBON, WT. %	0.348	1.123
T. ORGANIC C	0.100	0.039
T. CARBONATE C	0.248	1.084

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 9/8/76	DATE - EXPERIMENTAL 9/8/76
HYDROLOGICAL		
SALINITY, ‰	32.610	32.610
WATER TEMP., °C	27.800	27.800
SEDIMENT		
GRANULE, WT. %		
SAND		99.776
SILT		0.224
CLAY		
MEAN GRAIN SIZE, ϕ		2.508
ST. DEVIATION, ϕ		0.507
SKEWNESS		-0.015
KURTOSIS		1.348
T. CARBON, WT. %		0.302
T. ORGANIC C		0.257
T. CARBONATE C		0.045

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 9/21/76	DATE - EXPERIMENTAL 9/21/76
HYDROLOGICAL		
SALINITY, ‰	32.610	32.610
WATER TEMP., °C	27.800	27.800
SEDIMENT		
GRANULE, WT. %		
SAND		91.896
SILT		8.104
CLAY		
MEAN GRAIN SIZE, ϕ		2.835
ST. DEVIATION, ϕ		0.736
SKEWNESS		0.340
KURTOSIS		1.070
T. CARBON, WT. %		2.318
T. ORGANIC C		0.462
T. CARBONATE C		1.856

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 10/3/76	DATE - EXPERIMENTAL 10/4/76
HYDROLOGICAL		
SALINITY, ‰/0	33.060	33.060
WATER TEMP., C	24.900	24.900
SEDIMENT		
GRANULE, WT. %		0.092
SAND		99.626
SILT		0.293
CLAY		
MEAN GRAIN SIZE, ϕ		2.452
ST. DEVIATION, σ		0.481
SKEWNESS		-0.165
KURTOSIS		1.202
T. CARBON, WT. %		0.281
T. ORGANIC C		0.187
T. CARBONATE C		0.094

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 10/18/76	DATE - EXPERIMENTAL 10/18/76
HYDROLOGICAL		
SALINITY, ‰/0	33.060	33.060
WATER TEMP., C	24.900	24.900
SEDIMENT		
GRANULE, WT. %		98.611
SAND		1.389
SILT		
CLAY		
MEAN GRAIN SIZE, ϕ		2.536
ST. DEVIATION, σ		0.811
SKEWNESS		0.155
KURTOSIS		1.068
T. CARBON, WT. %		0.722
T. ORGANIC C		0.700
T. CARBONATE C		0.072

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 11/1/76	DATE - EXPERIMENTAL 11/1/76
HYDROLOGICAL		
SALINITY, ‰/0	33.170	33.170
WATER TEMP., C	18.000	18.000
SEDIMENT		
GRANULE, WT. %		0.108
SAND		98.769
SILT		1.123
CLAY		
MEAN GRAIN SIZE, ϕ		2.507
ST. DEVIATION, σ		0.536
SKEWNESS		-0.042
KURTOSIS		1.492
T. CARBON, WT. %		0.519
T. ORGANIC C		0.316
T. CARBONATE C		0.203

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 12/17/76	DATE - EXPERIMENTAL 12/17/76
HYDROLOGICAL		
SALINITY, 00/0	34.060	34.060
WATER TEMP., C	12.500	12.500
SEDIMENT		
GRANULE, WT.%		0.052
SAND	99.876	99.086
SILT	0.124	0.862
CLAY		
MEAN GRAIN SIZE, ϕ	2.300	2.524
ST. DEVIATION, ϕ	0.577	0.471
SKEWNESS	-0.267	0.074
KURTOSIS	1.118	1.225
T. CARBON, WT.%	0.275	0.498
T. ORGANIC C	0.060	0.110
T. CARBONATE C	0.215	0.388

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 12/27/77	DATE - EXPERIMENTAL 12/27/77
HYDROLOGICAL		
SALINITY, 00/0	33.280	33.280
WATER TEMP., C	12.400	12.400
SEDIMENT		
GRANULE, WT.%		0.437
SAND		97.222
SILT		2.341
CLAY		
MEAN GRAIN SIZE, ϕ		2.518
ST. DEVIATION, ϕ		0.597
SKEWNESS		-0.037
KURTOSIS		1.684
T. CARBON, WT.%		0.919
T. ORGANIC C		0.327
T. CARBONATE C		0.592

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 2/22/77	DATE - EXPERIMENTAL 2/22/77
HYDROLOGICAL		
SALINITY, 00/0	34.330	34.330
WATER TEMP., C	9.000	9.000
SEDIMENT		
GRANULE, WT.%		0.085
SAND		99.701
SILT		0.215
CLAY		
MEAN GRAIN SIZE, ϕ		2.499
ST. DEVIATION, ϕ		0.486
SKEWNESS		-0.036
KURTOSIS		1.295
T. CARBON, WT.%		0.313
T. ORGANIC C		0.296
T. CARBONATE C		0.017

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 3/1/77	DATE - EXPERIMENTAL 3/1/77
HYDROLOGICAL		
SALINITY, 00/0	34.440	34.440
WATER TEMP., C	14.300	14.300
SEDIMENT		
GRANULE, WT.X		0.652
SAND		99.265
SILT		0.084
CLAY		
MEAN GRAIN SIZE, ϕ		2.316
ST. DEVIATION, ϕ		0.571
SKEWNESS		-0.297
KURTOSIS		1.228
T. CARBON, WT.X		0.253
T. ORGANIC C		0.163
T. CARBONATE C		0.090

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 4/1/77	DATE - EXPERIMENTAL 3/1/77
HYDROLOGICAL		
SALINITY, 00/0	33.500	33.500
WATER TEMP., C	22.400	22.400
SEDIMENT		
GRANULE, WT.X		0.201
SAND	99.829	99.214
SILT	0.171	0.585
CLAY		
MEAN GRAIN SIZE, ϕ	2.303	2.487
ST. DEVIATION, ϕ	0.560	0.414
SKEWNESS	-0.275	-0.103
KURTOSIS	1.140	1.031
T. CARBON, WT.X	0.214	0.339
T. ORGANIC C	0.202	0.328
T. CARBONATE C	0.012	0.011

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 5/22/77	DATE - EXPERIMENTAL 5/22/77
HYDROLOGICAL		
SALINITY, 00/0	34.800	34.280
WATER TEMP., C	21.800	21.800
SEDIMENT		
GRANULE, WT.X		0.016
SAND		99.801
SILT		0.183
CLAY		
MEAN GRAIN SIZE, ϕ		2.491
ST. DEVIATION, ϕ		10.389
SKEWNESS		-0.100
KURTOSIS		0.937
T. CARBON, WT.X		0.244
T. ORGANIC C		0.097
T. CARBONATE C		0.147

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 6/1/77	DATE - EXPERIMENTAL 6/1/77
HYDROLOGICAL		
SALINITY, ‰/0	32.060	32.060
WATER TEMP., C	25.700	25.700
SEDIMENT		
GRANULE, WT. %		0.085
SAND		97.964
SILT		1.951
CLAY		
MEAN GRAIN SIZE, ϕ		2.356
ST. DEVIATION, σ		0.677
SKEWNESS		-0.193
KURTOSIS		1.572
T. CARBON, WT. %		1.206
T. ORGANIC C		0.206
T. CARBONATE C		1.000

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 7/5/77	DATE - EXPERIMENTAL 7/5/77
HYDROLOGICAL		
SALINITY, ‰/0	33.560	33.560
WATER TEMP., C	27.500	27.500
SEDIMENT		
GRANULE, WT. %	0.335	
SAND	99.422	98.705
SILT	0.244	1.295
CLAY		
MEAN GRAIN SIZE, ϕ	2.456	2.507
ST. DEVIATION, σ	0.453	0.483
SKEWNESS	-0.193	0.034
KURTOSIS	1.195	1.274
T. CARBON, WT. %		
T. ORGANIC C		
T. CARBONATE C		

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 8/2/77	DATE - EXPERIMENTAL 8/2/77
HYDROLOGICAL		
SALINITY, ‰/0	35.330	35.330
WATER TEMP., C	29.000	29.000
SEDIMENT		
GRANULE, WT. %		
SAND		97.489
SILT		2.511
CLAY		
MEAN GRAIN SIZE, ϕ		2.529
ST. DEVIATION, σ		0.463
SKEWNESS		0.161
KURTOSIS		1.201
T. CARBON, WT. %		
T. ORGANIC C		
T. CARBONATE C		

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 9/1/77	DATE - EXPERIMENTAL 9/1/77
HYDROLOGICAL		
SALINITY, 00/0	32.610	32.610
WATER TEMP., C	27.700	27.700
SEDIMENT		
GRANULE, WT.X		
SAND		96.923
SILT		3.077
CLAY		
MEAN GRAIN SIZE, ϕ		2.544
ST. DEVIATION, ϕ		0.465
SKEWNESS		0.197
KURTOSIS		1.219
T. CARBON, WT.X		
T. ORGANIC C		
T. CARBONATE C		

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 10/3/77	DATE - EXPERIMENTAL 10/3/77
HYDROLOGICAL		
SALINITY, 00/0	33.060	33.060
WATER TEMP., C	25.000	25.000
SEDIMENT		
GRANULE, WT.X		0.092
SAND		99.597
SILT		0.311
CLAY		
MEAN GRAIN SIZE, ϕ		2.491
ST. DEVIATION, ϕ		0.505
SKEWNESS		-0.037
KURTOSIS		1.327
T. CARBON, WT.X		
T. ORGANIC C		
T. CARBONATE C		

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 11/1/77	DATE - EXPERIMENTAL 11/1/77
HYDROLOGICAL		
SALINITY, 00/0		
WATER TEMP., C		
SEDIMENT		
GRANULE, WT.X		0.101
SAND		99.163
SILT		0.736
CLAY		
MEAN GRAIN SIZE, ϕ		2.551
ST. DEVIATION, ϕ		0.516
SKEWNESS		0.075
KURTOSIS		1.282
T. CARBON, WT.X		
T. ORGANIC C		
T. CARBONATE C		

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 7/11/77	DATE - EXPERIMENTAL 7/11/77
HYDROLOGICAL		
SALINITY, 00/0	33.560	33.560
WATER TEMP., C	27.500	27.500
SEDIMENT		
GRANULE, WT.%		
SAND	99.700	98.641
SILT	0.300	1.359
CLAY		
MEAN GRAIN SIZE, ϕ	2.445	2.499
ST. DEVIATION, σ	0.445	0.525
SKEWNESS	-0.187	-0.001
KURTOSIS	1.178	1.388
T. CARBON, WT.%		
T. ORGANIC C		
T. CARBONATE C		

SUN & SWIM MOTEL (STATION 2) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 7/11/77	DATE - EXPERIMENTAL 7/11/77
HYDROLOGICAL		
SALINITY, 00/0	33.560	33.560
WATER TEMP., C	27.500	27.500
SEDIMENT		
GRANULE, WT.%		
SAND	99.646	99.796
SILT	0.354	0.204
CLAY		
MEAN GRAIN SIZE, ϕ	2.452	2.425
ST. DEVIATION, σ	0.440	0.479
SKEWNESS	-0.179	-0.194
KURTOSIS	1.148	1.205
T. CARBON, WT.%		
T. ORGANIC C		
T. CARBONATE C		

HILTON HOLIDAY INN (STATION 3) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 7/11/77	DATE - EXPERIMENTAL 7/11/77
HYDROLOGICAL		
SALINITY, 00/0	33.330	33.330
WATER TEMP., C	26.800	26.800
SEDIMENT		
GRANULE, WT.%		
SAND	99.379	0.922
SILT	0.121	98.964
CLAY		0.114
MEAN GRAIN SIZE, ϕ	2.214	1.749
ST. DEVIATION, σ	0.615	1.064
SKEWNESS	-0.319	-0.460
KURTOSIS	1.109	0.824
T. CARBON, WT.%		
T. ORGANIC C		
T. CARBONATE C		

SANDPIPER MOTEL (STATION 4) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 7/11/77	DATE - EXPERIMENTAL 7/11/77
HYDROLOGICAL		
SALINITY, 00/0	33.330	33.330
WATER TEMP., C	26.800	26.800
SEDIMENT		
GRANULE, WT.%		0.079
SAND	99.859	99.810
SILT	0.141	0.111
CLAY		
MEAN GRAIN SIZE, ϕ	2.244	2.008
ST. DEVIATION, σ	0.608	0.831
SKEWNESS	-0.307	-0.414
KURTOSIS	1.158	0.954
T. CARBON, WT.%		
T. ORGANIC C		
T. CARBONATE C		

PEPPERTREE CONDOMINIUM (STATION 5) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 7/11/77	DATE - EXPERIMENTAL 7/11/77
HYDROLOGICAL		
SALINITY, 00/0	33.330	33.330
WATER TEMP., C	26.800	26.800
SEDIMENT		
GRANULE, WT.%		
SAND	99.864	99.863
SILT	0.136	0.137
CLAY		
MEAN GRAIN SIZE, ϕ	2.305	2.257
ST. DEVIATION, σ	0.593	0.575
SKEWNESS	-0.331	-0.280
KURTOSIS	1.344	1.111
T. CARBON, WT.%		
T. ORGANIC C		
T. CARBONATE C		

BLUE DOLPHIN MOTEL (STATION 6) - CONTROL & EXPERIMENTAL

PARAMETERS	DATE - CONTROL 7/11/77	DATE - EXPERIMENTAL 7/11/77
HYDROLOGICAL		
SALINITY, 00/0	33.330	33.330
WATER TEMP., C	26.800	26.800
SEDIMENT		
GRANULE, WT.%	0.340	0.137
SAND	99.520	99.757
SILT	0.139	0.106
CLAY		
MEAN GRAIN SIZE, ϕ	2.114	2.311
ST. DEVIATION, σ	0.760	0.612
SKEWNESS	-0.397	-0.340
KURTOSIS	1.092	1.391
T. CARBON, WT.%		
T. ORGANIC C		
T. CARBONATE C		

APPENDIX B

CHECKLIST OF ORGANISMS •

Checklist of organisms collected at offshore stations (9-meter depth) before and after dredging--beach restoration project, Panama City Beach, Florida (November 1974 to November 1977).

CHECKLIST OF ORGANISMS COLLECTED AT OFFSHORE STATIONS (30-FOOT DEPTH)
BEFORE AND AFTER DREDGING - BEACH RESTORATION PROJECT, PANAMA CITY
BEACH, FLORIDA (NOVEMBER 1974 TO NOVEMBER 1977).

CNIDARIA
ACTINIARIA (SEA ANEMONES)
UNIDENTIFIED SP.

PLATYHELMINTHES
TURBELLARIA (FLATWORMS)
UNIDENTIFIED SP.

NEMERTINEA (RIBBON WORMS)
UNIDENTIFIED SP.

NEMATODA (ROUNDWORMS)
UNIDENTIFIED SP.

PHORONIDA (PHORONIDS)
PHORONIS ARCHITECTA

BRACHIOPODA (LAMP SHELLS)
GLOTTIDIA PYRAMIDATA

MOLLUSCA (SHELLFISH)
GASTROPODA (SNAILS)
ACTEOCINA CANALICULATA
ACTECCINA CANDEI
ACTEON PUNCTOSTRIATUS
ANACHIS FLORIDANA
BULLA STRIATA
CAECUM FLORIDANUM
CAECUM IMBRICATUM
CAECUM PULCHELLUM
CYLICHNELLA BIDENTATA
DIASTOMA VARIUM
MELANELLA JAMAICENSIS
NASSARITUS ACUTUS
NATICA PUSILLA
OLIVA SAYANA
OLIVELLA BULLULA
OLIVELLA MINUTA
OLIVELLA MUTICA
OLIVELLA PUSILLA
PHILINE SAGRA
POLINICES DUPLICATUS
TEREBA CONCAVA
TEREBA DISLOCATA
TURBNILLA CONRADI
TURBNILLA ELEGANTULA
TURBNILLA SP.

PELECYPODA (CLAMS)
ANADARA FLORIDANA
ANATINA ANATINA
CARDIOMYA COSTELLATA
CHIONE CANCELLATA
CHIONE GRUS
CUMINGIA TELLINOIDES
CUMINGIA T. VANHYNINGI
CUNA CALLI
DIPLODONTA SEMIASPERA
DIPLODONTA SP.
ERVILIA CONCENTRICA
LAEVICARDIUM LAEVIGATUM
LAEVICARDIUM MORTONI
LAEVICARDIUM PICTUM

LEPTON SP.
LUCINA MULTILINEATA
LUCINA RADIANIS
LYCNSIA H. FLORIDANA
MACOMA CONSTRICTA
MACOPALLISTA MACULATA
MACOPALLISTA NIMBOSA
MACTRA SP.
MUSCULUS LATERALIS
NUCULANA ACUTA
PANDORA TRILINEATA
PAPYRIDEA SOLENIIFORMIS
PARVILUCINA BLANDA
PEPIPLCMA MARGARITACEUM
PITAE SIMPSONI
SEMELE PROFUGA
SOLEMYA SP.
SOLEMYA VELUM
SOLEN VIRIDIS
STRIGILLA MIRABILIS
TELLIDORA CRISTATA
TELLINA A. TAYLORIANA
TELLINA AEQUISTRIATA
TELLINA IRIS
TELLINA TAMPAENSIS
TELLINA TEXANA
TELLINA VERSICOLOR
TRACHYCARDIUM MURICATUM
VARICORBULA OBERCULATA
VENERIDAE UNIDENTIFIED SP.

ANNELIDA (SEGMENTED WORMS)
CLIGOCOAETA
UNIDENTIFIED SP.
POLYCHAETA

AGLACPHAMUS VERRILLI
AMERICONUPHIS MAGNA
AMPHARETE ACUTIFRONS
ANATIDES ERYTHROPHYLLUS
ANTINOE SP.
ADNIDES MAYAQUEZENSIS
APPRICNOSPPIO PYGMAEA
ARENICOLA CRISTATA
ARICIDEA CERRUTI
ARICIDEA FAUVELI
ARICIDEA FRAGILIS
ARICIDEA PHILIPINAE
ARICIDEA SUECICA
ARICIDEA TAYLORI
ARICIDEA WASSI
ARICIDEA SP.
ARMANDIA AGILIS
ARMANDIA MACULATA
ASYCHIS CAROLINAE
AXIOTHELLA MUCOSA
BRANCHIOASYCHIS AMERICANA
BRANIA CLAVATA
BRANIA WELFLEETENSIS
CABIRA INCERTA
CAPITELLA CAPITATA
CAPITELLIDES JONESI
CAPITELLIDAE UNIDENTIFIED SP.
CARAZZIELLA SP.
CAULLERTELLA SP.
CERATONEREIS IRRITABILIS
CERATONEREIS MIRABILIS
CHAETOCZONE GAYHEADIA

CHAETOCZENE SETOSA
CHLODIA VIRIDIS
CHONE SP.
CIRRATULIDAE UNIDENTIFIED SP.
CIRRORRHORUS LYRIFORMIS
CISTENIDES GOULDII
DASYERANCHUS LUMBRICOIDES
DICPATRA CUPREA
DISPID UNCINATA
DORVILLEA SOCIABILIS
DRIESCHIA PELLUCIDA
ENCOPLOBRANCHUS SANGUINEUS
ETEONE ALBA
ETEONE LACTEA
EULALIA SANGUINEA
EUNICE ANTENNATA
EURYTHOE COMPLANATA
EXOGENE DISPAR
FLABELLIGERA SP.
GLYCERA AMERICANA
GLYCERA DIBRANCHIATA
GLYCERA OXYCEPHALA
GLYCERA SP.
GLYCIDINE SOLITARIA
GONIADA LITTOREA
GRUBEULEPIS MEXICANA
GYPTIS BREVIPALPA
GYPTIS VITTATA
HAPLCSCOLOPLOS FOLIOSUS
HAPLCSCCLOPLOS FRAGILIS
HAPLCSCCLOPLOS ROBUSTUS
HARMOTHOE IMBRICATA
HARMOTHOE LUNULATA
HEMIFODUS ROSEUS
HETEROMASTUS FILIFORMIS
ISOLDA PULCHELLA
LAECNEREIS CULVERI
LOIMIA MEDUSA
LOIMIA VIRIDIS
LUMBRINERIS ACUTUS
LUMBRINERIS CRUZENSIS
LUMBRINERIS ERECTA
LUMBRINERIS TENUIS
LUMBRINERIS TETRAURA
LYSIDICE NINETTA
LYSILLA ALBA
MACROCCLYMENE ZONALIS
MAGELCNA LONGICORNIS
MAGELCNA PETTIBONEAE
MAGELCNA RIOJAI
MAGELCNA SP.
MALACCCERUS INDICUS
MEDIOMASTUS CALIFORNIENSIS
MEGALOMMA BIOCLATUM
MESOCHAETOPTERUS SAGITTARIUS
MICROPHTHALMUS ABERRANS
MICROPHTHALMUS SCZELKOWII
MICROPHTHALMUS SP.
MICROCSPID PIGMENTATA
MINUSPID CIRRIFERA
MYRICCHELE SP.
NEANTHES ACUMINATA
NEANTHES SP.
NEANTHES SUCCINEA
NEPHTYS BUCERA
NEPHTYS PICTA
NEPHTYS LAMELLOSA
NEPHTYS PELAGICA
NEPHTYS SP.
NOTOMASTUS HEMIPODUS
NOTOMASTUS LATERICEUS
ONUPHIS EPHEMITA OCULATA
ONUPHIS NEBULOSA
ONUPHIS PALLICA
OPHELIA SP.

ORHINIA RISERI
OWENIA FUSIFORMIS
PARANAITES SPECIOSA
PARACNIDES LYRA
PARACNIDES SP.
PAPACNIS FULGENS
PARACNIS SP.
PARAPICNOSPID PINNATA
PARAPICNOSYLLIS LCNGICIRRATA
PHERES EHLESTI
PHYLLOCOCE ARENAE
PHYLLOCOCE SP.
PHYLLOCRNATUS
PISTA CRISTATA
PISTA PALMATA
PIDARKE ORSCURA
POECILOCHAETUS JOHNSONI
POLYCIPRUS EXIMIUS
POLYDORA SOCIALIS
POLYDORA TETRABRANCHIA
POLYDORANTES LUPINA
POLYKOIDAE UNIDENTIFIED SP.
PRIONCSPID CRISTATA
PRIONCSPID STEENSTRUPI
PSEUDEURYTHOE AMBIGUA
RULLIERINEREIS MEXICANA
SABELLA MICROPHTHALIA
SCOLELEPIS SQUAMATA
SCOLELEPIS TEXANA
SCOLOPLOS ARMIGER
SCOLOPLOS RUBRA
SIGALCNA ARENICOLA
SIGAMBRA BASSI
SIGAMBRA TENTACULATA
SPHAEROSYLLIS SP.
SPID PETTIBONEAE
SPTONIDAE UNIDENTIFIED SP.
SPIOCHAETOPTERUS OCULATUS
SPICPHANES BOMBYX
STHENELAIS BOA
STREPTOSYLLIS ARENAE
THARYX ANNULOSUS
TRAVICIA HORSONAE
WEBSTERINEREIS TRIDENTATA

SIPUNCULIDA (PEANUT WORMS)

ASPIDOCSPIDON SP.
GOLFINGIA TRICHOCEPHALA
SIPUNCULUS LONGIPAPILLOSUS
UNIDENTIFIED SP.

ECHIURIDA (ECHIURIIDS)

UNIDENTIFIED SP.

ARTHROPODA (CRUSTACEANS)

AMPHIPODA
ACANTHCHAUSTORIUS SP.
AMPELISCA ABDITA
AMPELISCA SP.
AMPELISCA VADORUM
AMPELISCA VERRILLI
ARGISSA SP.
CAPRELLIDAE UNIDENTIFIED SP.
CARINCRATEA SP.
COROPHIUM SP.
CYMBALUS SP.
ELASMOPODUS SP.
ERICHTHONIUS SP.
GAMMAROPODUS SP.
GITANOPUS SP.
HIPPOMEDON SP.
HYPERIA SP.

LEMRCS SP.
 LEPIDACTYLUS SP.
 LISTRIELLA SP.
 LYSIANOPSIS SP.
 MELITA APPENDICULATA
 MICROEUTOPUS SP.
 MICROPROTOPUS SP.
 MONCCULODES SP.
 PARAPHOXUS SP.
 PHOTIS SP.
 PROTOHAUSTORIUS SP.
 PSEUDOPHAUSTORIUS SP.
 PSEUDOPLATYISCHNOPUS SP.
 SYNCELIDIUM SP.
 TIRON BIOSCELLATUS
 TIRON SP.
 UNIDENTIFIED SP.
 ANOMURA
 ALBUNEA PARETII
 EUCERAMUS PRAELONGUS
 LEPIDOPA WEBSTERI
 PAGURUS LONGICARPUS
 PAGURUS SP.
 PETRICHRUS DIOGENES
 PETRICLISTHES GALATHINUS
 BRACHYURA
 CALLINECTES SAPIOUS
 CALLINECTES SP.
 DISSODACTYLUS MELLITAE
 HEPATUS EPHELITICUS
 LIBINIA CURIA
 METOPORHAPIS CALCARATA
 OSACHILA TURERCSA
 OVALIPES OCELLATUS
 PANORPEUS HERBSTII
 PERSEPHONA P. AQUILONARIS
 PINNIXIA CHAETOPTERANA
 PINNIXIA CYLINDRICA
 PINNIXIA CRISTATA
 PINNIXIA LEPTOSYNAPTAE
 PINNIXIA LUNZI
 PINNIXIA PEARSEI
 PINNIXIA RETINGENS
 PINNIXIA SAYANA
 PINNIXIA SP.
 PINNOTHERES MACULATUS
 PINNOTHERES OSTREUM
 PINNOTHERES SP.
 PORTUNUS GIBBESII
 PORTUNUS SAYI
 PORTUNUS SP.
 PORTUNUS SPINIMANUS
 PORTUNIDAE UNIDENTIFIED SP.
 RANILIA MURICATA
 CALLIANASSIDAE
 CALLIANASSA JAMAICENSE
 CARIDEA
 ALPHEUS HETEROCHAELIS
 AMBICEPTER SYMMETRICUS
 HIPPOLYTE PLEURACANTHA
 LATREUTES PARVULUS
 LEPTOCHELA SERRATORBITA
 OGYRIDES ALPHAEOSTRIS
 OGYRIDES LIMICOLA
 PERCLIMENES LONGICAUDATUS
 PROCESSA HEMPHILLI
 PROCESSA VICINA
 SYNALPHEUS SP.
 UNIDENTIFIED SP.
 CUMACEA
 CYCLAPSIS SP.
 CYCLAPSIS VARIANS
 OXYUROSTYLIS SMITHI
 SPILOCUMA SALOMANI
 UNIDENTIFIED SP.
 ISOPODA
 ANCINA DEPRESSUS
 APANTHURA MAGNIFICA
 CHIRIDCTEA EXCAVATA
 EDOTEA MONTOSA
 LEPTOSTRACA
 NEBALIA SP.
 MYSDACEA
 BOWMANIELLA SP.
 MYSIDOPSIS BIGELOWI
 PRAUNUS FLEXUOSUS
 UNIDENTIFIED SP.
 GSTRACCCA
 HAPLOCYTHERIDEA SEPTIPUNCTATA
 SARSIELLA CHILDI
 UNIDENTIFIED SP.
 PENAIIDEA
 ACETES AMERICANUS
 LUCIFER FAXONI
 PENAEUS DUORARUM
 STICYONIA BREVIROSTRIS
 STICYONIA SP.
 STICYONIA TYPICA
 TRACHYPENAEUS CONSTRICTUS
 STOMATOPODA
 ACANTHOSQUILLA BIMINIENSIS
 CORONIS EXCAVATRIX
 TANALDACEA
 UNIDENTIFIED SP.
 ECHINODERMATA
 ASTEROIDEA (STARFISHES)
 ASTROPECTEN ARTICULATUS
 LUDIA ALTERNATA
 ECHINOIDEA (SAND DOLLARS; URCHINS)
 LYTECHINUS VARIEGATUS
 MOIRA ATROPS
 MELLITA QUINQUE SPERFORATA
 UNIDENTIFIED SP.
 HOLOTHUROIDEA (SEA CUCUMBERS)
 LEPTOSYNAPTA SP.
 UNIDENTIFIED SP.
 OPHIUROIDEA (BRITTLE STARS)
 HEMIPHOLIS ELONGATA
 MICROPHOLIS GRACILLIMA
 OPHIOPHRAGMUS FILOGRANEUS
 OPHIOPHRAGMUS MOOREI
 OPHIOPHRAGMUS WURDEMANI
 UNIDENTIFIED SP.
 HEMICHORDATA
 ENTEROPNEUSTA (ACORN WORMS)
 UNIDENTIFIED SP.
 CEPHALOCHORDATA (LANCELETS)
 BRANCHIOSTOMA FLORIDAE
 VERTEBRATA
 PISCES (FISHES)
 GOBIIDAE, UNIDENTIFIED SP.
 HEMIPTERONCTUS NOVACULA
 LEPIDIDIUM GRAELSI
 MICROGOBIUS CARRI
 OPHIDIIDAE, UNIDENTIFIED SP.
 SYMPHURUS SP.

APPENDIX C

BIOLOGICAL AND BIOSTATISTICAL DATA BY STATION

Biological and biostatistical data, by station and date, for offshore stations (9-meter depth) before and after dredging--beach restoration project, Panama City Beach, Florida (November 1974 to November 1977).

BIOLOGICAL AND BIOSTATISTICAL DATA, BY STATION AND DATE, FOR OFFSHORE STATIONS (30-FOOT DEPTH) BEFORE AND AFTER DREDGING - BEACH RESTORATION PROJECT, PANAMA CITY BEACH, FLORIDA (NOVEMBER 1974 TO NOVEMBER 1977).

STATION A - CONTROL

SPECIES	NO. OF INDIVIDUALS					PCT.
	11/74	2/75	5/75	8/75	TOTAL	
PLATYHELMINTHES						
TURBELLARIA (FLATWORMS)						
UNIDENTIFIED SP.	0	0	4	1	5	0.58
NEMERTINEA (RIBBON WORMS)						
UNIDENTIFIED SP.	1	4	7	8	20	2.33
NEMATODA (ROUNDWORMS)						
UNIDENTIFIED SP.	0	19	7	18	44	5.12
MOLLUSCA (SHELLFISH)						
GASTROPODA (SNAILS)						
ACTECCINA CANDEI	0	0	0	1	1	0.12
ACTECCIN PUNCTOSTRIATUS	0	0	0	1	1	0.12
NATICA PUSILLA	0	0	0	2	2	0.23
OLIVELLA MUTICA	0	0	0	2	2	0.23
POLINICES DUPLICATUS	0	0	2	0	2	0.23
TEREBRA DISLOCATA	0	0	1	0	1	0.12
PELECYPODA (CLAMS)						
ERVILIA CONCENTRICA	0	0	1	1	2	0.23
LUCINA MULTILINEATA	0	2	2	4	8	0.93
PERIPLOMA MARGARITACEUM	0	1	0	0	1	0.12
STRIGILLA MIRABILIS	0	0	2	10	12	1.40
TELLINA VERSICOLOR	0	0	1	19	20	2.33
ANNELIDA (SEGMENTED WORMS)						
OLIGOCHAETA						
UNIDENTIFIED SP.	22	35	5	0	62	7.22
POLYCHAETA						
APCPEICNOSPID PYGMAEA	0	1	1	3	5	0.58
ARTICEA SP.	2	2	0	0	4	0.47
ARMANCIA MACULATA	5	2	18	4	29	3.38
ERANIA CLAVATA	0	0	0	1	1	0.12
ERANIA WELFLEETENSIS	0	0	2	4	6	0.70
CAPITELLICAE UNIDENTIFIED SP.	0	2	0	0	2	0.23
DIOPATRA CUPREA	0	1	0	0	1	0.12
DISPID UNCINATA	0	0	0	1	1	0.12
ETEONE LACTEA	0	0	1	7	8	0.93
GLYCERA AMERICANA	0	0	1	4	5	0.58
HAPLOSCLOPLOS FOLIOLUS	0	0	0	1	1	0.12
HAPLOSCLOPLOS ROBUSTUS	0	1	0	0	1	0.12
LUMBRINERIS CRUZENSIS	0	0	0	11	11	1.28
MAGELCNA RIOJAI	0	0	1	0	1	0.12
MAGELCNA SP.	0	0	1	0	1	0.12
MESOCHEILOPTERUS SAGITTARILIS	0	0	1	0	1	0.12
MINUSPID CIRRIFERA	0	1	1	0	2	0.23
NEPHYS BUCERA	0	0	0	2	2	0.23
NEPHYS PICTA	0	2	7	6	15	1.75
ONUPHIS EREMITA OCULATA	1	0	0	0	1	0.12
PARANAITES SPECIOSA	0	0	0	1	1	0.12
PARACNIDES LYRA	19	5	0	1	25	2.91
PARACNIDES SP.	2	0	0	0	2	0.23
PARAPRIONOSPID PINNATA	17	1	3	0	21	2.44
PHYLLCDOCE ARENAE	0	0	4	0	4	0.47
PHYLLCDOCE SP.	0	0	5	0	5	0.58
POECILOCHAETUS JOHNSONI	0	0	1	0	1	0.12
PRIONOSPID CRISTATA	47	76	4	5	132	15.37
SCOLELEPIS SQUAMATA	2	0	0	0	2	0.23
SCOLELEPIS TEXANA	0	4	5	0	9	1.05
SCOLOPLOS RUBRA	0	1	0	0	1	0.12

STATION A - CONTROL
(CONTINUED)

SPECIES	NO. OF INDIVIDUALS				TOTAL	PCT.
	11/74	2/75	5/75	8/75		
<u>SIGAMBRA BASSI</u>	0	1	1	2	4	0.47
<u>SPIO PETTIBONEAE</u>	7	5	9	1	22	2.56
<u>SPIOCHAELOPTERUS OCULATUS</u>	1	0	0	0	1	0.12
<u>SPIOPHANES BOMBIX</u>	0	1	42	2	45	5.24
ARTHROPODA (CRUSTACEANS)						
AMPHIPODA						
<u>ACANTHOHAUSTORIUS SP.</u>	0	0	8	2	10	1.16
<u>LYSIANOPSIS SP.</u>	0	0	1	0	1	0.12
<u>PROTOFALSTORIUS SP.</u>	0	12	58	15	85	9.90
<u>PSEUDOFALSTORIUS SP.</u>	0	3	4	3	10	1.16
<u>PSEUDOPALATIUSCHNOPUS SP.</u>	1	2	2	16	21	2.44
<u>SYNCHLITIDUM SP.</u>	0	2	3	0	5	0.58
ANOMURA						
<u>ALBUEA PARETII</u>	1	0	0	0	1	0.12
EPOCHYURA						
<u>PINNIXIA CRISTATA</u>	0	0	0	1	1	0.12
<u>PINNATHERES MACULATUS</u>	0	0	2	0	2	0.23
<u>PORTUNUS GIBBESII</u>	0	0	0	1	1	0.12
<u>PORTUNUS SEMINANUS</u>	1	0	0	0	1	0.12
<u>RANILIA MURICATA</u>	0	0	0	2	2	0.23
CARIDEA						
<u>PROCESSA HEMPHILLI</u>	0	0	7	0	7	0.81
<u>PROCESSA VICINA</u>	0	0	0	1	1	0.12
CLMACEA						
<u>CYCLAPSIS VARIANS</u>	0	0	0	1	1	0.12
<u>OXYURCSTYLIS SMITHI</u>	0	0	3	0	3	0.35
UNIDENTIFIED SP.	0	0	0	2	2	0.23
OSTRACCA						
UNIDENTIFIED SP.	0	0	0	8	8	0.93
PENAIDEA						
<u>SICYONIA BREVIROSTRIS</u>	0	1	0	0	1	0.12
ECHINODERMATA						
ECHINOIDEA (SAND DOLLARS; URCHINS)						
<u>MELLITA QUINQUESPERFORATA</u>	0	0	0	45	45	5.24
HOLOTHURIDEA (SEA CUCUMBERS)						
UNIDENTIFIED SP.	0	0	0	3	3	0.35
OPHIURIDEA (BRITTLE STARS)						
UNIDENTIFIED SP.	0	0	11	0	11	1.28
CEPHALOCHORDATA (LANCELETS)						
<u>BRANCHIOSTOMA FLORIDAE</u>	0	1	59	19	79	9.20
VERTEBRATA						
PISCES (FISHES)						
<u>HEMIFERCINCTUS NOVACULA</u>	0	0	0	1	1	0.12
<u>OPHIOTIDAE, UNIDENTIFIED SP.</u>	0	0	1	0	1	0.12
TOTALS						
NC. SPECIES	125	188	299	243	855	
NC. IND. PER M2	15	27	41	43	75	
S-W INDEX - H'(LN)	2064	3008	4784	3888		
EVENNESS - J	1.923	2.154	2.801	3.113		
	0.710	0.654	0.754	0.828		
AV. NO. SPECIES	31.5					
AV. NC. IND. PER M2	3436.0					
AV. S-W INDEX		2.458				
AV. EVENNESS		0.736				

STATION B - CONTROL

SPECIES	NO. OF INDIVIDUALS					PCT.
	11/74	2/75	5/75	8/75	TOTAL	
CNIDARIA						
ACTINIARIA (SEA ANEMONES)						
UNIDENTIFIED SP.	0	0	0	2	2	0.17
PLATYHELMINTHES						
TURBELLARIA (FLATWORMS)						
UNIDENTIFIED SP.	0	0	2	1	3	0.26
NEMERTINEA (RIBBON WORMS)						
UNIDENTIFIED SP.	0	3	6	7	16	1.39
NEMATODA (ROUNDWORMS)						
UNIDENTIFIED SP.	0	18	2	11	31	2.70
MOLLUSCA (SHELLFISH)						
GASTROPODA (SNAILS)						
ACTECCINA CANEI	0	0	0	6	6	0.52
PELECYFODA (CLAMS)						
CHIONE CANCELLATA	0	1	0	0	1	0.09
ERVILIA CONCENTRICA	0	0	2	1	3	0.26
STRIGILLA MIRABILIS	0	1	7	74	82	7.14
TELLINA VERSICOLOR	0	0	0	28	28	2.44
ANNELIDA (SEGMENTED WORMS)						
CLIOCHAETA						
UNIDENTIFIED SP.	18	26	1	10	55	4.79
POLYCHAETA						
AGLAPHAMUS VERRILLI	1	0	0	0	1	0.09
AMPHARETE ACUTIFRONS	1	0	0	0	1	0.09
ANATIDES ERYTHROPHYLLUS	0	0	1	0	1	0.09
APOEIONOSPIO PYGMAEA	0	0	2	0	2	0.17
ARICIEA FRAGILIS	1	0	0	1	2	0.17
ARMANCIA MACULATA	11	13	24	1	49	4.26
BRANIA WELFLEETENSIS	4	1	1	3	9	0.78
CAPITELLIDAE UNIDENTIFIED SP.	1	0	0	0	1	0.09
CAULLERIELLA SP.	0	0	0	2	2	0.17
CERATONEREIS IRRITABILIS	0	0	0	2	2	0.17
CIRRAILLIDAE UNIDENTIFIED SP.	0	1	0	0	1	0.09
DISPID UNCINATA	0	0	0	1	1	0.09
ETECNE LACTEA	0	0	1	4	5	0.44
GLYCERA AMERICANA	0	0	0	3	3	0.26
GYPTIS VITTATA	4	1	0	0	5	0.44
HAPLOSCILLIDAE FRAGILIS	0	1	0	0	1	0.09
HETERONASTUS FILIFORMIS	3	0	0	0	3	0.26
LUMBINERIS CRUZEIRIS	0	0	0	2	2	0.17
MAGELINA SP.	1	0	0	0	1	0.09
MEDICINASTUS CALIFORNIENSIS	0	0	0	1	1	0.09
MESOCHAETOPTERUS SAGITTARIUS	0	0	0	3	3	0.26
MINUSPIC CIRRIFERA	0	1	0	0	1	0.09
NEPHYS BUCERA	0	0	1	0	1	0.09
NEPHYS PICTA	0	0	6	4	10	0.87
NOTONASTUS HEMIPODUS	0	0	0	2	2	0.17
OPHELIA SP.	9	3	0	5	17	1.48
OWENIA FUSIFORMIS	1	0	0	0	1	0.09
PARACNIDES LYRA	3	3	0	1	7	0.61
PARACNIS FULGENS	0	3	0	0	3	0.26
PARAPRICNOSPIC PINNATA	10	1	0	0	11	0.96
PHYLLIDICE ARENAE	0	0	2	0	2	0.17
PHYLLIDICE SP.	0	0	2	0	2	0.17
PCECILICHAETUS JOHNSENI	0	1	0	0	1	0.09

STATION B - CONTROL
(CONTINUED)

SPECIES	NO. OF INDIVIDUALS				TOTAL	PCT.
	11/74	2/75	5/75	8/75		
<u>FRICNCSPID CRISTATA</u>	134	55	3	18	210	18.28
<u>SCOLELEPIDIS SOUAMATA</u>	1	1	0	0	2	0.17
<u>SCOLELEPIDIS TEXANA</u>	0	3	11	0	14	1.22
<u>SCOLCPLCS RUBRA</u>	0	2	0	0	2	0.17
<u>SPID PETTIBONEAE</u>	9	1	22	5	37	3.22
<u>SPIONIDAE UNIDENTIFIED SP.</u>	2	0	0	0	2	0.17
<u>SPIOPHANES BCMBYX</u>	0	0	29	7	36	3.13
<u>TRAVISIA HOBSCNAE</u>	0	0	0	3	3	0.26
<u>SIPUNCULICA (PEANUT WORMS)</u>						
<u>SIPUNCULUS LONGIPAPILLCSUS</u>	0	1	0	1	2	0.17
<u>ARTIROPODA (CRUSTACEANS)</u>						
<u>AMPHIFODA</u>						
<u>ACANTHOHAUSTORIUS SP.</u>	0	6	16	7	29	2.52
<u>AMPELISCA SP.</u>	1	0	0	1	2	0.17
<u>LITIRIELLA SP.</u>	0	0	0	3	3	0.26
<u>MONOCLODES SP.</u>	0	0	0	1	1	0.09
<u>PROTOHALSTORILS SP.</u>	0	29	100	8	137	11.92
<u>PSEUDOHALSTORILS SP.</u>	0	0	1	1	2	0.17
<u>PSEUDOPLATYISCHNOPUS SP.</u>	1	4	3	11	19	1.65
<u>SYNCHELIDILM SP.</u>	3	0	6	1	10	0.87
<u>BRACHYURA</u>						
<u>PINNIXIA CRISTATA</u>	0	0	1	0	1	0.09
<u>PINNIXIA SAYANA</u>	0	0	0	6	6	0.52
<u>RANILIA MURICATA</u>	0	0	0	2	2	0.17
<u>CARIDEA</u>						
<u>PROCESSA FEMPHILLI</u>	1	0	1	11	13	1.13
<u>PROCESSA VICINA</u>	0	0	0	1	1	0.09
<u>CUMACEA</u>						
<u>CYCLAPSIS VARIANS</u>	0	0	0	2	2	0.17
<u>UNIDENTIFIED SP.</u>	0	0	0	3	3	0.26
<u>OSTRACCA</u>						
<u>UNIDENTIFIED SP.</u>	0	0	0	3	3	0.26
<u>PENAEIDAE</u>						
<u>TRACHYPENAEUS CONSTRICTUS</u>	1	0	0	0	1	0.09
<u>ECHINODERMATA</u>						
<u>ECHINOCIDEA (SAND DOLLARS; URCHINS)</u>						
<u>MELLITA QUINQUE SPERFORATA</u>	5	0	0	6	11	0.96
<u>UNIDENTIFIED SP.</u>	0	0	7	0	7	0.61
<u>HOLOTHIROIDEA (SEA CUCUMBERS)</u>						
<u>LEPTCSYNAPTA SP.</u>	0	0	0	1	1	0.09
<u>OPHIURCIDEA (BRITTLE STARS)</u>						
<u>OPHIOURUS FILIGRANEUS</u>	1	0	0	0	1	0.09
<u>CEPHALOCORDATA (LANCELETS)</u>						
<u>BRANCHIOSTOMA FLORIDAE</u>	10	69	74	51	204	17.75
<u>VERTEBRATA</u>						
<u>PISCES (FISHES)</u>						
<u>MICROGIDIUS CARRI</u>	1	0	0	0	1	0.09
TOTALS	238	249	334	328	1149	
NO. SPECIES	27	26	28	47	75	
NO. IND. PER M2	3808	3984	5344	5248		
S-W INDEX - F'(LN)	1.898	2.247	2.320	3.000		
EVENNESS - J	0.576	0.690	0.696	0.779		
AV. NO. SPECIES	32.0					
AV. NO. IND. PER M2	4596.0					
AV. S-W INDEX		2.366				
AV. EVENNESS		0.685				

TREASURE ISLAND MOTEL (STATION 1) - CCNTROL

SPECIES	NO. OF INDIVIDUALS				PCT.
	4/76	6/76	7/76	TOTAL	
CNIDARIA					
ACTINIARIA (SEA ANEMONES)					
UNIDENTIFIED SP.	0	1	2	3	0.06
PLATYHELMINTHES					
TURBELLARIA (FLATWORMS)					
UNIDENTIFIED SP.	0	3	0	3	0.06
NEMERTINEA (RIBBON WORMS)					
UNIDENTIFIED SP.	25	37	62	124	2.34
NEMATODA (ROUNDWORMS)					
UNIDENTIFIED SP.	25	48	133	206	3.89
PHORONIDA (PHORONIDS)					
<u>PHORONIS ARCHITECTA</u>	2	2	1	5	0.09
MOLLUSCA (SHELLFISH)					
GASTROPODA (SNAILS)					
<u>ACTECCINA CANALICULATA</u>	1	1	0	2	0.04
<u>ACTECCINA CANDEI</u>	0	18	24	42	0.79
<u>CAECUM FLORIDANUM</u>	0	9	20	29	0.55
<u>CAECUM IMBRICATUM</u>	0	0	1	1	0.02
<u>CYLIPTERELLA BICENTATA</u>	0	3	11	14	0.26
<u>DIASITOMA VARIUM</u>	0	0	5	5	0.09
<u>NATICA PUSILLA</u>	0	0	16	16	0.30
<u>OLIVELLA BULLULA</u>	0	0	11	11	0.21
<u>OLIVELLA MUTICA</u>	1	0	2	3	0.06
<u>OLIVELLA PUSILLA</u>	0	3	0	3	0.06
<u>TURBNILLA CONRADI</u>	0	0	10	10	0.19
<u>TURBNILLA ELEGANTULA</u>	0	0	5	5	0.09
<u>TURBNILLA SP.</u>	0	0	1	1	0.02
PELECYPODA (CLAMS)					
<u>ANADARA FLORIDANA</u>	0	3	22	25	0.47
<u>CHIONE GRUS</u>	0	1	0	1	0.02
<u>CUMINGIA T. VANHYNINGI</u>	0	0	1	1	0.02
<u>DIPLODONTA SP.</u>	0	0	2	2	0.04
<u>ERVILIA CONCENTRICA</u>	1	15	223	239	4.52
<u>LEPTON SP.</u>	3	0	10	13	0.25
<u>LUCINA MULTILINEATA</u>	6	35	30	71	1.34
<u>LUCINA RADIANI</u>	1	0	0	1	0.02
<u>LYONSIA H. FLORIDANA</u>	0	2	4	6	0.11
<u>MACROCALLISTA NIMBOSA</u>	0	0	1	1	0.02
<u>MACTEA SP.</u>	0	0	1	1	0.02
<u>PAPYRIDEA SOLENIIFORMIS</u>	1	0	0	1	0.02
<u>PARVILUCINA BLANCA</u>	1	0	0	1	0.02
<u>PERILUCINA MARGARITACEUM</u>	1	1	0	2	0.04
<u>PITAE SIMPSONI</u>	1	4	5	10	0.19
<u>SEMELE FRIGIDA</u>	0	0	6	6	0.11
<u>STRIGILLA MIRABILIS</u>	1	1	22	24	0.45
<u>TELLINA TEXANA</u>	0	7	90	97	1.83
<u>TELLINA VERSICOLOR</u>	13	43	555	611	11.54
<u>VENETIDAE UNIDENTIFIED SP.</u>	0	9	3	12	0.23
ANNELIDA (SEGMENTED WORMS)					
CLIOCHAETA					
UNIDENTIFIED SP.	46	20	31	97	1.83
POLYCHAETA					
<u>AMPHARETE ACUTIFORMIS</u>	5	0	0	5	0.09
<u>APOLICINCSPIO PYGMAEA</u>	2	5	6	13	0.25

TREASURE ISLAND MOTEL (STATION 1) - CONTROL
(CONTINUED)

SPECIES	NO. OF INDIVIDUALS				PCT.
	4/76	6/76	7/76	TOTAL	
ARMANCIA AGILIS	0	1	6	7	0.13
ARMANCIA MACULATA	11	7	29	47	0.89
BRANCHIOASYCHIS AMERICANA	1	0	0	1	0.02
ERANIA CLAVATA	0	0	1	1	0.02
ERANIA WELFLEETENSIS	1	3	10	14	0.26
CAPITELLA CAPITATA	0	0	1	1	0.02
CAULLERIELLA SP.	0	0	1	1	0.02
CERATONEREIS MIRABILIS	0	0	3	3	0.06
CHONE SP.	0	1	9	10	0.19
DIOPATRA CUPREA	0	0	2	2	0.04
DISPIC UNCINATA	3	1	0	4	0.08
ENOPLCERANCHUS SANGUINEUS	0	0	1	1	0.02
ETECNE LACTEA	2	5	7	14	0.26
EULALIA SANGUINEA	0	0	1	1	0.02
EXOCHNE DISPAR	0	0	1	1	0.02
GLYCERA AMERICANA	1	33	25	59	1.11
GLYCERA CIERANCHIATA	0	0	2	2	0.04
GLYCERA OXYCEPHALA	8	0	0	8	0.15
GLYCERA SP.	0	0	2	2	0.04
GONIATA LITTOREA	0	24	17	41	0.77
GRUEULEPIS MEXICANA	0	1	0	1	0.02
GYPTIS VITTATA	0	0	1	1	0.02
HAPLOCYCLOPLOS FOLIOSUS	2	4	8	14	0.26
HARMOTICE LUNULATA	0	1	0	1	0.02
ISOLCA PULCHELLA	1	0	0	1	0.02
LUMBERINERIS CRUZENSIS	2	146	940	1088	20.56
LUMBERINERIS TETRAURA	0	5	0	5	0.09
LYSILLA ALBA	1	0	0	1	0.02
MAGELCNA RIOJAI	1	0	0	1	0.02
MAGELCNA SP.	0	1	6	7	0.13
MEDICMASTUS CALIFORNENSIS	0	2	0	2	0.04
MESOCYCAETOPTERUS SAGITTARIUS	0	0	35	35	0.66
MYRICCHELE SP.	1	0	0	1	0.02
NEANTHES ACUMINATA	1	0	0	1	0.02
NEANTHES SUCCINEA	0	0	1	1	0.02
NEPHIYS BUCERA	2	2	11	15	0.28
NEPHIYS PICTA	48	37	56	141	2.66
NEREIS PELAGICA	1	0	6	7	0.13
NOTOMASTUS HEMIPODUS	0	2	2	4	0.08
NOTOMASTUS LATERICELUS	0	3	0	3	0.06
ONUPHIS FREMITA OCULATA	3	17	32	52	0.98
ONUPHIS NEBULOSA	2	1	0	3	0.06
OWENIA FUSIFORMIS	7	10	8	25	0.47
PARANAITES SPECIOSA	0	2	0	2	0.04
PARACNIDES LYRA	3	6	3	12	0.23
PARACNIS FULGENS	4	4	10	18	0.34
PARAFRIONOSPPIO PINNATA	16	0	1	17	0.32
PHYLLODCCCE ARENAE	5	3	24	32	0.60
PISTA CRISTATA	1	0	0	1	0.02
PISTA PALMATA	0	0	1	1	0.02
POECILOCHAETUS JOHNSONI	1	0	0	1	0.02
POLYDORA TETRABRANCHIA	0	4	0	4	0.08
PRIONOSPPIO CRISTATA	16	105	205	326	6.16
PRIONOSPPIO STEENSTRUPI	0	0	11	11	0.21
PSEUDEURYTHOE AMBIGUA	1	0	0	1	0.02
RULLIERINEREIS MEXICANA	0	2	6	8	0.15
SABELLA MICROPHTHALMA	0	0	1	1	0.02
SCOLELEPIS SQUAMATA	0	1	1	2	0.04
SCOLELEPIS TEXANA	4	2	3	9	0.17
SCOLCLOS ARMIGER	0	1	17	18	0.34
SIGALICN ARENICOLA	0	1	0	1	0.02

TREASURE ISLAND MOTEL (STATION 1) - CONTROL
(CONTINUED)

SPECIES	NO. OF INDIVIDUALS			TOTAL	PCT.
	4/76	6/76	7/76		
<u>SIGAMBRA BASSI</u>	1	1	5	7	0.13
<u>SPIC PETTIBONEAE</u>	12	1	15	28	0.53
<u>SPICCAETICTEFUS OCULATUS</u>	4	0	2	6	0.11
<u>SPICPHANES BCMBYX</u>	336	40	21	397	7.50
<u>STHEBELAIS BCA</u>	1	0	1	2	0.04
<u>SIPUNCULICA (PEANUT WORMS)</u>					
<u>GOLFINGIA TRICHOCEPHALA</u>	1	0	1	2	0.04
<u>ARTHROPODA (CRUSTACEANS)</u>					
<u>AMPHIPODA</u>					
<u>ACANTHCHAUSTICUS SP.</u>	1	0	7	8	0.15
<u>AMPELISCA ABCITA</u>	0	1	0	1	0.02
<u>AMPELISCA VERRILLI</u>	2	7	89	98	1.85
<u>ARGISSA SP.</u>	0	1	5	6	0.11
<u>CORCEPIUM SP.</u>	0	0	1	1	0.02
<u>CYMAULSA SP.</u>	1	0	0	1	0.02
<u>ERICHTHONIUS SP.</u>	0	0	1	1	0.02
<u>HYPERIA SP.</u>	0	0	1	1	0.02
<u>LEPTACTYLUS SP.</u>	0	1	0	1	0.02
<u>LISTERIELLA SP.</u>	0	1	6	7	0.13
<u>LYSIANOPSIS SP.</u>	0	1	0	1	0.02
<u>MICROPROCTOPUS SP.</u>	0	3	0	3	0.06
<u>MONOCULODES SP.</u>	1	1	25	27	0.51
<u>PARAPHOXUS SP.</u>	0	1	1	2	0.04
<u>PROTIS SP.</u>	0	1	0	1	0.02
<u>PROTOFAUSTORIUS SP.</u>	2	0	27	29	0.55
<u>PSEUDOHALSTORIUS SP.</u>	1	1	7	9	0.17
<u>PSELCOPLATYISCHNOPUS SP.</u>	56	19	209	284	5.37
<u>SYNCHELIDILUM SP.</u>	19	17	58	94	1.78
<u>TIRON BIOSCELLATUS</u>	0	0	2	2	0.04
<u>TIRON SP.</u>	1	0	0	1	0.02
<u>ANOMURA</u>					
<u>ALBUNEA PARETII</u>	0	1	0	1	0.02
<u>LEPIDOPA WEBSTERI</u>	0	0	3	3	0.06
<u>PAGURUS LONGICARPUS</u>	0	0	8	8	0.15
<u>BRACHYURA</u>					
<u>CALLINECTES SP.</u>	0	0	5	5	0.09
<u>HEPATUS EPHELITICUS</u>	0	0	3	3	0.06
<u>LIBINIA CUBIA</u>	0	0	1	1	0.02
<u>OVALIPES OCELLATUS</u>	0	0	1	1	0.02
<u>PERSEPHONEA P. AQUILONARIS</u>	0	0	1	1	0.02
<u>PINNIXIA CRISTATA</u>	6	0	0	6	0.11
<u>PINNIXIA RETINENS</u>	0	3	8	11	0.21
<u>PINNIXIA SAYANA</u>	0	2	4	6	0.11
<u>CALLINANASSIDAE</u>					
<u>CALLIANASSA JAMAICENSE</u>	0	0	1	1	0.02
<u>CARIDEA</u>					
<u>ALPHEUS HETEROCHAELIS</u>	0	1	0	1	0.02
<u>AMBICEXTER SYMMETRICUS</u>	0	1	0	1	0.02
<u>HIPPOLYTE PLEURACANTHA</u>	0	0	1	1	0.02
<u>LATREUTES PARVULUS</u>	0	0	3	3	0.06
<u>PROCESSA FEMPHILLI</u>	0	3	3	6	0.11
<u>PROCESSA VICINA</u>	0	1	0	1	0.02
<u>CUMACEA</u>					
<u>CYCLAPSIS SP.</u>	0	1	6	7	0.13
<u>CYCLAPSIS VARIANS</u>	14	20	26	60	1.13
<u>OXYUROSSTYLIS SMITHI</u>	4	11	13	28	0.53
<u>ISPODA</u>					
<u>EDOTEA MCNTOSA</u>	0	1	4	5	0.09
<u>LEFTCTRACA</u>					

TREASURE ISLAND MOTEL (STATION 1) - CONTROL
(CONTINUED)

SPECIES	NO. OF INDIVIDUALS			TOTAL	PCT.
	4/76	6/76	7/76		
<u>NEEALIA SP.</u>	0	0	6	6	0.11
MYSIDACEA					
<u>PRALNIS FLEXUCSUS</u>	0	1	0	1	0.02
UNIDENTIFIED SP.	3	1	2	6	0.11
CSTRACCA					
<u>HAPLOCYTHERIDEA SEPTIPUNCTATA</u>	0	29	0	29	0.55
UNIDENTIFIED SP.	0	0	17	17	0.32
PENAEACEA					
<u>SICYPTIA TYPICA</u>	0	1	0	1	0.02
STomatopoda					
<u>ACANTHOSQUILLA BIMINIENSIS</u>	0	1	3	4	0.08
ECHINODERMATA					
ASTEROCIDEA (STARFISHES)					
<u>ASTROPECTEN ARTICULATUS</u>	0	0	1	1	0.02
ECHINOIDEA (SAND DOLLARS; URCHINS)					
<u>MELLITA QUINQUESPERFORATA</u>	1	50	123	174	3.29
HOLOTHURICIDEA (SEA CUCUMBERS)					
UNIDENTIFIED SP.	0	1	0	1	0.02
OPHIURICIDEA (BRITTLE STARS)					
<u>OPHIOPHRAGMUS WURDEMANI</u>	0	1	1	2	0.04
UNIDENTIFIED SP.	0	8	14	22	0.42
HEMICHORCATA					
ENTEROPNEUSTA (ACORN WORMS)					
UNIDENTIFIED SP.	0	3	0	3	0.06
CEPHALOCORDATA (LANCELETS)					
<u>BRANCHIOSTOMA FLORIDAE</u>	0	4	23	27	0.51
VERTEBRATA					
PISCES (FISHES)					
<u>HEMIPYRONOTUS NOVACULA</u>	0	0	1	1	0.02
TOTALS	753	951	3585	5293	
NO. SPECIES	67	94	120	166	
NO. IND. PER M2	1506	1902	7178		
S-W INDEX - H' (LN)	2.516	3.482	3.084		
EVENNESS - J	0.598	0.766	0.644		
AV. NO. SPECIES	93.7	AV. S-W INDEX	3.027		
AV. NO. IND. PER M2	3528.7	AV. EVENNESS	0.670		

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
8/10/76

SPECIES	NO.	OF	IND. (C.)	NO.	CF	IND. (E.)
	TOTAL	PERCENT	TOTAL	PERCENT	TOTAL	PERCENT
CNICARIA						
ACTINIARIA (SEA ANEMONES)						
UNIDENTIFIED SP.	4	0.287	0	0.0		
PLATYHELMINTHES						
TURBELLARIA (FLATWORMS)						
UNIDENTIFIED SP.	1	0.072	0	0.0		
NEMERTINEA (RIBBON WORMS)						
UNIDENTIFIED SP.	23	1.650	1	1.235		
NEMATODA (ROUNDWORMS)						
UNIDENTIFIED SP.	33	2.367	2	2.469		
MOLLUSCA (SHELLFISH)						
GASTROPODA (SNAILS)						
CAECUM FLORIDANUM	2	0.143	1	1.235		
CYLICHELLA BIDENTATA	1	0.072	0	0.0		
NASSARIUS ACUTUS	1	0.072	0	0.0		
NATICA PUSILLA	2	0.143	0	0.0		
OLIVELLA BULLULA	3	0.215	0	0.0		
TEREBERA DISLOCATA	2	0.143	0	0.0		
TURBENILLA CONRADII	2	0.143	0	0.0		
PELECYPODA (CLAMS)						
CUMINGIA TELLINOIDES	3	0.215	0	0.0		
ERVILIA CONCENTRICA	38	2.726	0	0.0		
LEPTON SP.	7	0.502	0	0.0		
LUCINA MULTILINEATA	8	0.574	0	0.0		
STRIGILLA MIRABILIS	13	0.933	0	0.0		
TELLINA TAMPAENSIS	1	0.072	0	0.0		
TELLINA TEXANA	93	6.671	0	0.0		
TELLINA VERSICOLOR	123	8.824	12	14.815		
ANNELIDA (SEGMENTED WORMS)						
CLIGOCFAETA						
UNIDENTIFIED SP.	7	0.502	0	0.0		
PCLYCHAETA						
AMPHARETE ACUTIFRONS	1	0.072	0	0.0		
ARMANDIA MACULATA	1	0.072	0	0.0		
AXIOHELLA MUCOSA	1	0.072	0	0.0		
BRANIA WELFLEETENSIS	14	1.004	1	1.235		
CAULLERTELLA SP.	1	0.072	1	1.235		
CHICNE SP.	1	0.072	0	0.0		
ETECNE LACTEA	4	0.287	1	1.235		
GLYCERA AMERICANA	6	0.430	1	1.235		
GLYCERA SP.	2	0.143	0	0.0		
GONIAFA LITTOREA	0	0.0	1	1.235		
GYPTIS VITTATA	0	0.0	1	1.235		
HAPLOSICCLOPLCS FOLIOSUS	2	0.143	0	0.0		
HARMOTIDE LUNULATA	1	0.072	0	0.0		
LOIMIA MEDUSA	1	0.072	0	0.0		
LUMEFINERIS CRUZENSIS	669	47.991	38	46.914		
MAGELCNA SP.	1	0.072	0	0.0		
MESOCFAETOPTERUS SAGITTARIUS	2	0.143	0	0.0		
NEANTHES ACUMINATA	2	0.143	0	0.0		
NEPHTHYS BUCERA	1	0.072	0	0.0		
NEPHTHYS PICTA	5	0.359	0	0.0		
ONUPHIS EREMITA OCULATA	9	0.646	0	0.0		
ONUPHIS NEBULOSA	11	0.789	4	4.938		
PARANATHES SPECIOSA	5	0.359	0	0.0		

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

8/10/76

(CONTINUED)

SPECIES	NO. CF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>PHYLLODODCE ARENAE</u>	5	0.359	0	0.0
<u>PRIONOSPION CRISTATA</u>	69	4.950	0	0.0
<u>ULLIATINUS MEXICANA</u>	3	0.215	1	1.235
<u>SCOLOPLOS ARMIGER</u>	14	1.004	5	6.173
<u>SCAMERUS BASSI</u>	5	0.359	0	0.0
<u>SPION PETITIBONEAE</u>	2	0.143	0	0.0
<u>SPIONIDAE BOBMYX</u>	7	0.502	0	0.0
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>ACANTHOHAUSTORIUS SP.</u>	1	0.072	0	0.0
<u>AMPELISCA VERRILLI</u>	3	0.215	0	0.0
<u>COROPHUM SP.</u>	1	0.072	0	0.0
<u>MICROPROTOPUS SP.</u>	1	0.072	0	0.0
<u>MONOCLODES SP.</u>	5	0.359	0	0.0
<u>PROTALISCRIS SP.</u>	15	1.076	4	4.938
<u>PSEUDHAUSTORIUS SP.</u>	8	0.574	1	1.235
<u>PSEUDOPALATISCHNIPUS SP.</u>	74	5.308	1	1.235
<u>SYNCHLIDUM SP.</u>	10	0.717	0	0.0
BRACHYURA				
<u>OVALIPES OCELLATUS</u>	1	0.072	0	0.0
<u>PINNIXIA RETINENS</u>	3	0.215	0	0.0
CARIDEA				
<u>PROCESSA FEMPHILLI</u>	2	0.143	0	0.0
<u>UNIDENTIFIED SP.</u>	2	0.143	0	0.0
CLMACEA				
<u>CYCLAPSIS SP.</u>	4	0.287	0	0.0
<u>CYCLAPSIS VARIANS</u>	5	0.359	0	0.0
<u>CYCLAPSIS SMITHI</u>	1	0.072	0	0.0
ISOPODA				
<u>EDOTEA MONTOSA</u>	3	0.215	0	0.0
MYSIDACEA				
<u>UNIDENTIFIED SP.</u>	1	0.072	0	0.0
OSTRACCEA				
<u>UNIDENTIFIED SP.</u>	12	0.861	0	0.0
PENAEACEA				
<u>SICYPTIA TYPICA</u>	0	0.0	1	1.235
ECHINODERMATA				
ASTEROIDEA (STARFISHES)				
<u>ASTROPECTEN ARTICULATUS</u>	1	0.072	0	0.0
ECHINOIDEA (SAND DOLLARS; URCHINS)				
<u>MELLITA QUINQUESPERFORATA</u>	14	1.004	2	2.469
OPHIURIDEA (BRITTLE STARS)				
<u>OPHIURUS WURCEMANI</u>	1	0.072	0	0.0
HEMICHORDATA				
ENTEROPNEUSTA (ACORN WORMS)				
<u>UNIDENTIFIED SP.</u>	2	0.143	0	0.0
CEPHALOCHORDATA (LANCELETS)				
<u>FRANCISCOSTOMA FLORIDAE</u>	12	0.861	2	2.469
TOTALS				
NO. SPECIES	1394	72	81	20
NO. IND. PER M2		5576		324
S-W INDEX - H'(LN)		2.3604		2.0322
EVENNESS - J		0.5519		0.6784

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
8/18/76

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNIDARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	3	0.218	0	0.0
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	8	0.582	0	0.0
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	33	2.400	3	1.230
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	59	4.291	3	1.230
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>ACTECCINA CANDEI</u>	1	0.073	0	0.0
<u>NATICA PUSILLA</u>	3	0.218	0	0.0
<u>CLIVELLA PULLULA</u>	5	0.364	0	0.0
<u>TURBNILLA CONRADI</u>	1	0.073	0	0.0
PELECYPODA (CLAMS)				
<u>ERVILIA CONCENTRICA</u>	17	1.236	0	0.0
<u>LEPTON SP.</u>	4	0.291	0	0.0
<u>LUCINA MULTILINEATA</u>	11	0.800	0	0.0
<u>PAPYRICEA SOLENIFORMIS</u>	1	0.073	0	0.0
<u>PERIPLOMA MARGARITACEUM</u>	2	0.145	0	0.0
<u>PITAR SIMPSONI</u>	2	0.145	3	1.230
<u>STRIGILLA MIRABILIS</u>	13	0.945	0	0.0
<u>TELLINA TEXANA</u>	55	4.000	2	0.820
<u>TELLINA VERSICOLOR</u>	79	5.745	18	7.377
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	15	1.091	0	0.0
POLYCHAETA				
<u>AMPHARETE ACUTIFFENS</u>	1	0.073	0	0.0
<u>APOPRIONTSFIC PYGMAEA</u>	0	0.0	1	0.410
<u>ARMANDIA MACULATA</u>	12	0.873	1	0.410
<u>BRANIA WELFLEETENSIS</u>	9	0.655	0	0.0
<u>CAPITELLA CAPITATA</u>	1	0.073	0	0.0
<u>CAPITELLIDES JONESI</u>	1	0.073	1	0.410
<u>CAULLERIELLA SP.</u>	1	0.073	0	0.0
<u>CERATONEREIS IRRITABILIS</u>	7	0.509	1	0.410
<u>CHONE SP.</u>	3	0.218	0	0.0
<u>CIOPATRA CUPREA</u>	1	0.073	1	0.410
<u>ETEONE LACTEA</u>	2	0.145	1	0.410
<u>EXOCHNE DISPAR</u>	1	0.073	0	0.0
<u>FLABELLIGERA SP.</u>	1	0.073	0	0.0
<u>GLYCERA AMERICANA</u>	3	0.218	1	0.410
<u>GLYCERA DIBRANCHIATA</u>	6	0.436	1	0.410
<u>GLYCERA SP.</u>	4	0.291	0	0.0
<u>CONIACA LITTOREA</u>	1	0.073	0	0.0
<u>FAPLSCOLOPLOS FOLIOSUS</u>	0	0.0	3	1.230
<u>FARMOTHOE LUNULATA</u>	1	0.073	0	0.0
<u>LUMBRINERIS CRUZENSIS</u>	499	36.291	113	46.311
<u>MAGELONA SP.</u>	1	0.073	0	0.0
<u>MESOCHEILOPTERUS SAGITTARILIS</u>	4	0.291	3	1.230
<u>NEPHIYS BUCERA</u>	1	0.073	0	0.0
<u>NEPHIYS PICTA</u>	5	0.655	0	0.0
<u>ONUPHIS FREMITA OCULATA</u>	0	0.0	1	0.410

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
8/18/76
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>CNUPHIS NEBULOSA</u>	7	0.509	0	0.0
<u>PARANAITES SPECIOSA</u>	1	0.073	0	0.0
<u>PARACNITES LYRA</u>	0	0.0	2	0.820
<u>PARACNITES FULGENS</u>	1	0.073	0	0.0
<u>PARAPRIONOSPION PINNATA</u>	1	0.073	2	0.820
<u>PHYLLICDICE ARENAE</u>	3	0.218	2	0.820
<u>POLYDORA TETRABRANCHIA</u>	1	0.073	1	0.410
<u>PRIONOSPION CRISTATA</u>	200	14.545	43	17.623
<u>RULLIERINEREIS MEXICANA</u>	4	0.291	C	C.0
<u>SCOLOPLICES ARMIGER</u>	30	2.182	7	2.869
<u>SIGALICN ARENICOLA</u>	2	0.145	C	C.0
<u>SIGAMERA BASSI</u>	9	0.655	C	C.0
<u>SPIO PETTIBONEAE</u>	6	0.436	C	C.0
<u>SPIOPHANES BOMBYX</u>	5	0.364	C	C.0
 <u>SIPLUNCULICA (PEANUT WORMS)</u>				
<u>GOLFINGIA TRICHOCEPHALA</u>	1	0.073	1	0.410
 <u>ARTHROPODA (CRUSTACEANS)</u>				
<u>AMPHIPODA</u>				
<u>ACANTHOHAUSTORIUS SP.</u>	12	0.873	0	0.0
<u>AMPELISCA ABDITA</u>	3	0.218	1	0.410
<u>AMPELISCA VERRILLI</u>	15	1.091	3	1.230
<u>ARGISSA SP.</u>	2	0.145	0	0.0
<u>MONOCILLICES SP.</u>	C	0.0	1	0.410
<u>PROTIOHALSTORILS SP.</u>	15	1.091	0	0.0
<u>PSEUDOHALSTORILS SP.</u>	6	0.436	0	0.0
<u>PSEUDOPALATYISCHNOPUS SP.</u>	45	3.564	4	1.639
<u>SYNCELIDILUM SP.</u>	13	0.945	1	0.410
<u>BRACHYURA</u>				
<u>CALLINECTES SP.</u>	1	0.073	0	C.0
<u>PINNIXIA RETINENS</u>	5	0.364	C	0.0
<u>CALLIANASSIDAE</u>				
<u>CALLIANASSA JAMAICENSE</u>	0	0.0	3	1.230
<u>CARIDEA</u>				
<u>ERCCASSA TEMPHILLI</u>	7	0.509	0	0.0
<u>ERCCASSA VICINA</u>	3	0.218	1	0.410
<u>CUMACEA</u>				
<u>CYCLAPSID SP.</u>	5	0.364	0	0.0
<u>CYCLAPSID VARIANS</u>	12	0.873	4	1.639
<u>OXYUROSSTYLIS SMITHI</u>	7	0.509	5	2.049
<u>LEPTOSTRACA</u>				
<u>NEBALIA SP.</u>	1	0.073	1	0.410
<u>MYSDACEA</u>				
<u>UNIDENTIFIED SP.</u>	2	0.145	1	0.410
<u>OSTRACCA</u>				
<u>UNIDENTIFIED SP.</u>	10	0.727	2	0.820
<u>PENAIIDEA</u>				
<u>SICYCNIA BREVIROSTRIS</u>	C	0.0	1	0.410
<u>STOMATOPODA</u>				
<u>ACANTHOSQUILLA BIMINIENSIS</u>	0	0.0	1	0.410
 <u>ECHINODERMATA</u>				
<u>ASTEROIDEA (STARFISHES)</u>				
<u>ASTROPECTEN ARTICULATUS</u>	1	0.073	0	0.0
<u>ECHINOIDEA (SAND DOLLARS; URCHINS)</u>				
<u>MELLITA CLINGUIESPERFERATA</u>	15	1.091	C	0.0
<u>HOLOTHURIDEA (SEA CUCUMBERS)</u>				
<u>LEPTOSYNAPTIA SP.</u>	2	0.145	C	C.0
<u>OPHIURIDEA (BRITTLE STARS)</u>				
<u>OPHICHRAGMUS WURDEMANI</u>	1	0.073	0	0.0

APPENDIX B (CONTINUED)

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

8/18/76
(CONTINUED)

SPECIES	NO. CF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
UNIDENTIFIED SP.	2	0.145	0	0.0
HEMICHORDATA				
ENTEROPNEUSTA (ACORN WORMS)				
UNIDENTIFIED SP.	1	0.073	0	0.0
CEPHALOCORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	32	2.327	0	0.0
VERTEBRATA				
PISCES (FISHES)				
<u>SYMPHURUS SP.</u>	1	0.073	0	0.0
TOTALS	1375		244	
NO. SPECIES		80		38
NO. IND. PER M2		5500		576
S-W INDEX - H'(LN)		2.7517		2.1746
EVENNESS - J		0.6280		0.5978

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
8/24/76

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNICARIA				
ACTINIFARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	3	0.248	1	0.187
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	6	0.496	2	0.375
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	25	2.068	9	1.685
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	16	1.323	1	0.187
BRACHIOPODA (LAMP SHELLS)				
<u>GLTITIDIA PYRAMIDATA</u>	0	0.0	1	0.187
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
ACTECCINA CANDEI	3	0.248	0	0.0
NATICA PUSILLA	1	0.083	0	0.0
OLIVELLA BULLULA	1	0.083	0	0.0
PELECYFODA (CLAMS)				
ANADARA FLORIDANA	1	0.083	0	0.0
CARDICMYA COSTELLATA	0	0.0	1	0.187
ERVILIA CONCENTRICA	42	3.474	0	0.0
LEPTON SP.	1	0.083	4	0.749
LUCINA MULTILINEATA	9	0.744	1	0.187
PAPYRIDEA SOLENIIFORMIS	2	0.165	0	0.0
PERIFLCMA MARGARITACEUM	1	0.083	1	0.187
PITAE SIMPSONI	27	2.233	0	0.0
STRIGILLA MIRABILIS	14	1.158	1	0.187
TELLINA TAMPAENSIS	2	0.165	0	0.0
TELLINA TEXANA	21	1.737	9	1.685
TELLINA VERSICOLOR	78	6.452	23	4.307
VENERIDAE UNIDENTIFIED SP.	6	0.496	0	0.0
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	17	1.406	2	0.375
POLYCHAETA				
APCPRICNSFIC PYGMAEA	1	0.083	0	0.0
ARENICCLA CRISTATA	1	0.083	0	0.0
ARMANDIA MACULATA	9	0.744	9	1.685
AXIOTHELLA MUCOSA	2	0.165	0	0.0
BRANIA WELFLEETENSIS	7	0.579	0	0.0
CERATNEFEIS IRRITABILIS	6	0.496	7	1.311
CHCNE SP.	9	0.744	0	0.0
DIOPATRA CUPREA	1	0.083	2	0.375
ETECNE LACTEA	7	0.579	4	0.749
EULALIA SANGUINEA	1	0.083	1	0.187
GLYCERA AMERICANA	4	0.331	3	0.562
GLYCERA DIBRANCHIATA	3	0.248	1	0.187
GLYCERA SP.	3	0.248	2	0.375
GLYCINCE SOLITARIA	0	0.0	1	0.187
GONIATA LITTOREA	7	0.579	1	0.187
GYPTIS VITTATA	1	0.083	0	0.0
HAPLISCOLOPLOS FOLIOSUS	1	0.083	0	0.0
ISOLLA PULCHELLA	1	0.083	0	0.0
LUMBRINERIS CRUZEINSIS	476	39.371	170	31.835

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

8/24/76
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>MALACCOCERUS INDICUS</u>	0	0.0	1	0.187
<u>MESOCYCAETOPTERUS SAGITTARIUS</u>	11	0.910	13	2.434
<u>NEPHYS PICTA</u>	12	0.993	1	0.187
<u>NOTICMASTUS LATERICEUS</u>	2	0.165	0	0.0
<u>GNUPHIS EREMITA OCULATA</u>	34	2.812	3	0.562
<u>GNUPHIS NEBULOSA</u>	2	0.165	2	0.375
<u>OWENIA FUSIFORMIS</u>	4	0.331	0	0.0
<u>PARANAITES SPECIOSA</u>	3	0.248	1	0.187
<u>PARACNICES LYRA</u>	2	0.165	0	0.0
<u>PARACNIS FULGENS</u>	2	0.165	1	0.187
<u>PARAPRIONOSPPIO PINNATA</u>	1	0.083	2	0.375
<u>PHYLLODOCE ARENAE</u>	4	0.331	6	1.124
<u>POLYDORA TETRABRANCHIA</u>	1	0.083	0	0.0
<u>PRIONOSPPIO CRISTATA</u>	101	8.354	114	21.348
<u>RULLIERINEREIS MEXICANA</u>	15	1.241	1	0.187
<u>SCOLOPLOS ARMIGER</u>	39	3.226	21	3.933
<u>SCOLOPLOS RUBRA</u>	0	0.0	1	0.187
<u>SIGALION ARENICOLA</u>	1	0.083	0	0.0
<u>SIGAMERA BASSI</u>	2	0.165	0	0.0
<u>SPIO PETTIBONEAE</u>	12	0.993	19	3.558
<u>SPIOCYCAETOPTERUS OCULATUS</u>	2	0.165	0	0.0
<u>SPIOPHANES BOMBYX</u>	5	0.414	1	0.187

ARTHROPODA (CRUSTACEANS)

AMPHIPODA

<u>ACANTHOHAUSTORIUS SP.</u>	0	0.0	1	0.187
<u>AMPELISCA AEDITA</u>	1	0.083	1	0.187
<u>AMPELISCA VERRILLI</u>	31	2.564	27	5.056
<u>LISTRIELLA SP.</u>	1	0.083	0	0.0
<u>MONOCULODES SP.</u>	1	0.083	0	0.0
<u>PROTOKHAUSTORIUS SP.</u>	4	0.331	1	0.187
<u>PSEUDOMALSTORIUS SP.</u>	1	0.083	1	0.187
<u>PSEUDOPLATYSCHNOPUS SP.</u>	8	0.662	31	5.805
<u>SYNCHYLIDILM SP.</u>	4	0.331	1	0.187

ANCMURA

<u>ALBLA PARETII</u>	1	0.083	1	0.187
<u>PETROCHIRUS DIOGENES</u>	0	0.0	1	0.187
<u>PETROLISTHES GALATHINUS</u>	0	0.0	1	0.187

BRACHYURA

<u>CALLINECTES SP.</u>	2	0.165	0	0.0
<u>HEPATUS EPHELITICUS</u>	1	0.083	0	0.0
<u>PINNIXIA RETINENS</u>	0	0.0	1	0.187

CARIDEA

<u>OGYRIDES LIMICOLA</u>	1	0.083	0	0.0
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CUMACEA

<u>CYCLAPIS SP.</u>	10	0.827	1	0.187
<u>CYCLAPIS VARIANS</u>	3	0.248	2	0.375
<u>CYCLAPIS SMITHI</u>	16	1.323	3	0.562

ISCOPIDA

<u>EDOTEA MONTOSA</u>	3	0.248	0	0.0
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LEPTOSTRACA

<u>NEBALIA SP.</u>	2	0.165	1	0.187
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OSTRACODA

<u>UNIDENTIFIED SP.</u>	13	1.075	1	0.187
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PENAICEA

<u>PENAEUS DUORARUM</u>	0	0.0	1	0.187
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STOMATOPODA

<u>ACANTHOSQUILLA BIMINIENSIS</u>	1	0.083	0	0.0
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ECHINODERMATA

ASTEROICEA (STARFISHES)

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
8/24/76
(CONTINUED)

SPECIES	NO. CF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>ASTROPECTEN ARTICULATUS</u>	1	0.083	0	0.0
<u>ECHINOIDEA (SAND DOLLARS; URCHINS)</u>				
<u>MELLITA QUINQUESPERFORATA</u>	6	0.496	0	0.0
<u>HOLOTHUROIDEA (SEA CUCUMBERS)</u>				
<u>LEPTOSYNAPTA SP.</u>	5	0.744	1	0.187
<u>OPHIURIDEA (BRITTLE STARS)</u>				
<u>OPHIOPHRAGMUS WURDEMANI</u>	2	0.165	0	0.0
<u>UNIDENTIFIED SP.</u>	5	0.414	1	0.187
 <u>HEMICHORDATA</u>				
<u>ENTEROPNEUSTA (ACORN WORMS)</u>				
<u>UNIDENTIFIED SP.</u>	2	0.165	0	0.0
 <u>CEPHALOCORDATA (LANCELETS)</u>				
<u>BRANCHIOSICMA FLORIDAE</u>	9	0.744	11	2.060
 <u>VERTEBRATA</u>				
<u>PISCES (FISHES)</u>				
<u>LEPOPHIDIUM GRAELSI</u>	0	0.0	1	0.187
 <u>TOTALS</u>	1209		534	
NO. SPECIES		84		60
NO. IND. PER M2		4836		2136
S-W INDEX - H'(LN)		2.8449		2.5827
EVENNESS - J		0.6421		0.6308

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
9/1/76

SPECIES	NO. OF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNIDARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	1	0.130	0	0.0
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	5	0.649	1	0.248
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	20	2.597	7	1.737
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	10	1.299	1	0.248
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
NATICA PUSILLA	5	0.649	0	0.0
OLIVELLA BULLULA	1	0.130	0	0.0
TEREBA DISLOCATA	2	0.260	0	0.0
TURBANILLA CONRADI	1	0.130	0	0.0
PELECYPODA (CLAMS)				
ERVILIA CONCENTRICA	30	3.896	1	0.248
LEPTON SP.	0	0.0	4	0.993
LUCINA MULTILINEATA	11	1.429	0	0.0
LYCNIA H. FLORICANA	3	0.390	0	0.0
PAPYRIDEA SOLENTIFORMIS	1	0.130	0	0.0
PITAE SIMPSONI	1	0.130	0	0.0
SEMELE PROFICUA	4	0.519	3	0.744
STRIGILLA MIRABILIS	17	2.208	0	0.0
TELLINA IRIS	0	0.0	1	0.248
TELLINA VERSICOLOR	58	7.532	32	7.940
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	16	2.078	2	0.496
PCLYCHAETA				
APCERINCSPIG PYCHAEA	1	0.130	0	0.0
ARCTIDEA WASSI	1	0.130	0	0.0
ARNANCIA MACULATA	2	0.260	0	0.0
AXIOHELLA MUCCSA	2	0.260	0	0.0
BRANCHIASYCHIS AMERICANA	1	0.130	0	0.0
BRANCIA WELFLEETENSIS	3	0.390	1	0.248
CERATOCEREIS IRRITABILIS	16	2.078	14	3.474
CHAETOCNE GAYHEACIA	1	0.130	0	0.0
CHCNE SP.	6	0.779	3	0.744
CISTEATIDES GULDII	1	0.130	0	0.0
ETECNE LACTEA	1	0.130	3	0.744
GLYCERA DIBRANCHIATA	3	0.390	1	0.248
GLYCERA SP.	2	0.260	0	0.0
GONIAIA LITTOREA	3	0.390	2	0.496
HAPLOSCCLOPLOS FRAGILIS	4	0.519	0	0.0
LUMBERINERIS CRUZENSIS	283	36.753	207	51.365
MESOCYCAETOPTERUS SAGITTARIUS	8	1.039	7	1.737
NEANTIES ACUMINATA	2	0.260	0	0.0
NEANTIES SUCCINEA	3	0.390	0	0.0
NEPHTYS EUCERA	1	0.130	1	0.248
NEPHTYS PICTA	17	2.208	3	0.744
CNUPHIS EREMITA OCULATA	17	2.208	3	0.744
CWENIA FUSIFORMIS	1	0.130	0	0.0
PARACNICES LYRA	1	0.130	1	0.248

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

9/1/76

(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF INC. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>FARAPIONCSPIC PINNATA</u>	2	0.260	3	0.744
<u>PISTA PALMATA</u>	0	0.0	1	0.248
<u>PEGILOCHAETUS JOHNSONI</u>	0	0.0	2	0.496
<u>PRIONOSPION CRISTATA</u>	32	4.156	37	9.181
<u>ULLIENHOFERIS MEXICANA</u>	21	2.727	9	2.233
<u>SCOLELEPIS TEXANA</u>	1	0.130	0	0.0
<u>SCOLELEPIS ARMIGER</u>	50	6.494	17	4.218
<u>SIGAMERA TENTACULATA</u>	0	0.0	3	0.744
<u>SPIC PETTIBONEAE</u>	17	2.208	1	0.248
<u>SPICHAETOPTERUS OCULATUS</u>	3	0.390	0	0.0
<u>SPICIFANES BOMBYX</u>	6	0.779	2	0.496
SIPUNCULICA (PEANUT WORMS)				
<u>GOLFINGIA TRICHOCEPHALA</u>	1	0.130	0	0.0
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>ACANTHOCHAUSTORIUS SP.</u>	9	1.169	0	0.0
<u>AMPELISCA AEDITA</u>	1	0.130	0	0.0
<u>AMPELISCA VERRILLI</u>	13	1.688	7	1.737
<u>COROPHIUM SP.</u>	1	0.130	0	0.0
<u>MONOCULODES SP.</u>	0	0.0	4	0.993
<u>PROTOCHAUSTORIUS SP.</u>	3	0.390	0	0.0
<u>PSEUDOCOAUSTORIUS SP.</u>	4	0.519	0	0.0
<u>PSEUDOPLATYSCHNOPUS SP.</u>	2	0.260	3	0.744
<u>SYNHELIDIUM SP.</u>	2	0.260	0	0.0
ANOMURA				
<u>ALBUNEA PARETII</u>	1	0.130	0	0.0
BRACHYURA				
<u>CALLINECTES SP.</u>	2	0.260	0	0.0
<u>PINNIXIA RETINENS</u>	1	0.130	0	0.0
CALLINANASSIDAE				
<u>CALLINANASSA JAMAICENSE</u>	2	0.260	0	0.0
CARIDEA				
<u>LATREUTES PARVULUS</u>	1	0.130	0	0.0
<u>PROCESSA VICINA</u>	1	0.130	0	0.0
CLMACEA				
<u>CYCLAPSIS VARIANS</u>	1	0.130	2	0.496
<u>ORYZOSTYLIS SMITHI</u>	2	0.260	4	0.993
MYSIDACEA				
UNIDENTIFIED SP.	0	0.0	4	0.993
OSTRACODA				
UNIDENTIFIED SP.	6	0.779	4	0.993
STOMATOPODA				
<u>ACANTHOSQUILLA BIMINIENSIS</u>	2	0.260	0	0.0
ECHINODERMATA				
ASTEROIDEA (STARFISHES)				
<u>ASTROPECIEN ARTICULATUS</u>	1	0.130	0	0.0
ECHINOIDEA (SAND DOLLARS; URCHINS)				
<u>MELLITA QUINQUESPERFORATA</u>	3	0.390	0	0.0
HOLOTHUROIDEA (SEA CUCUMBERS)				
<u>LEFTCSYNAPTA SP.</u>	1	0.130	2	0.496
OPHIURICEA (BRITTLE STARS)				
<u>OPHIOPHRAGMUS WURDEMANI</u>	4	0.519	0	0.0
HEMICHORDATA				
ENTEROPNEUSTA (ACORN WORMS)				
UNIDENTIFIED SP.	4	0.519	0	0.0

CEPHALOCHOERDATA (LANCELETS)

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
5/1/76
(CONTINUED)

SPECIES	NO. CF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>BRANCHIOSTOMA FLORIDAE</u>	4	0.519	0	0.0
TOTALS	770		403	
NO. SPECIES		74		38
NO. IND. PER M2		3080		1612
S-W INDEX - H' (LN)		2.8922		2.1365
EVENNESS - J		0.6720		0.5873

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
9/8/76

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNICARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	4	0.708	0	0.0
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	1	0.177	0	0.0
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	23	4.071	6	1.786
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	4	0.708	0	0.0
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
ACTECCINA CANDEI	2	0.354	0	0.0
CYLICHNELLA BIDENTATA	1	0.177	1	0.298
NATICA PUSILLA	2	0.354	1	0.298
OLIVELLA BULLULA	1	0.177	0	0.0
PELECYPODA (CLAMS)				
ERVILIA CONCENTRICA	12	2.124	1	0.298
LEPTON SP.	1	0.177	2	0.595
LUCINA MULTILINEATA	17	3.009	0	0.0
PAPYRIDEA SOLENIFERMIS	1	0.177	0	0.0
PERIPLOMA MARGARITACEUM	6	1.062	0	0.0
PITAR SIMPSONI	1	0.177	0	0.0
SEMELE PROFICUA	2	0.354	1	0.298
STRIGILLA MIRABILIS	3	0.531	0	0.0
TELLINA IRIS	0	0.0	1	0.298
TELLINA TEXANA	0	0.0	9	2.679
TELLINA VESICOLOR	37	6.549	15	4.464
VENERIDAE UNIDENTIFIED SP.	3	0.531	1	0.298
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	10	1.770	1	0.298
POLYCHAETA				
APOFFRICOSPIC PYGMAEA	1	0.177	4	1.190
ARICIDEA SP.	1	0.177	0	0.0
ARMANCIA AGILIS	0	0.0	2	0.595
ARMANCIA MACULATA	3	0.531	1	0.298
AXICHELLEA MUCCSA	1	0.177	0	0.0
BRANIA WELFLEETENSIS	1	0.177	0	0.0
CAPITELLIDES JONESI	1	0.177	0	0.0
CERATONEREIS IRRITABILIS	18	3.186	11	3.274
CERATONEREIS MIRABILIS	1	0.177	2	0.595
CHAETOCYBE GAYHEADIA	3	0.531	0	0.0
CHONE SP.	5	0.885	0	0.0
CISTENIDES GULDII	4	0.708	0	0.0
ETECNE LACTEA	1	0.177	0	0.0
EULALIA SANGUINEA	1	0.177	0	0.0
GLYCERA CIERANCHIATA	5	0.885	1	0.298
GONIAIA LITTOREA	15	2.655	1	0.298
HAPLOSCELOPCS ROBUSTUS	1	0.177	0	0.0
HARMOTOC LUNULATA	1	0.177	0	0.0
ISOLCA PULCHELLA	2	0.354	0	0.0
LUMEFINERIS CRUZENSIS	150	26.549	112	33.333
LUMEFINERIS TETRAURA	3	0.531	0	0.0
MAGELCNA SP.	3	0.531	0	0.0

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
9/8/76
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>MEDICASTUS CALIFORNIENSIS</u>	3	0.531	0	0.0
<u>MESOCYCTOPTERUS SAGITTARIUS</u>	4	0.708	1	0.298
<u>NEANTIES SUCCINEA</u>	0	0.0	2	0.595
<u>NEPHTYS PICTA</u>	15	2.655	1	0.298
<u>NOTOMASTUS HEMIPODUS</u>	0	0.0	1	0.298
<u>NOTOMASTUS LATERICEUS</u>	3	0.531	0	0.0
<u>ONUPHIS EREMITA OCULATA</u>	28	4.956	14	4.167
<u>ONUPHIS NEBULOSA</u>	1	0.177	0	0.0
<u>OWENIA FUSIFORMIS</u>	2	0.354	0	0.0
<u>PARANATIES SPECIOSA</u>	1	0.177	1	0.298
<u>PARACNIDES LYRA</u>	9	1.593	0	0.0
<u>PARACNIS FULGENS</u>	1	0.177	0	0.0
<u>PARAPRIONOSPPIO PINNATA</u>	4	0.708	9	2.679
<u>PHYLLODOCE ARENAE</u>	10	1.770	8	2.381
<u>POECILOCHAETUS JOHNSENI</u>	0	0.0	2	0.595
<u>PRIONOSPPIO CRISTATA</u>	17	3.009	26	7.738
<u>RULLIERINEREIS MEXICANA</u>	19	3.363	16	4.762
<u>SCOLOPLCS ARMIGER</u>	22	3.894	33	9.821
<u>SIGALICA ARENICOLA</u>	2	0.354	0	0.0
<u>SIGAMMA BASSI</u>	1	0.177	0	0.0
<u>SIGAMBRA TENTACULATA</u>	2	0.354	0	0.0
<u>SPIC FETIIBONEAE</u>	1	0.177	14	4.167
<u>SPICHAETOPTERUS OCULATUS</u>	0	0.0	1	0.298
<u>SPICPHANES BOMBIX</u>	8	1.416	7	2.083
 <u>SIPUNCULICA (PEANUT WORMS)</u>				
<u>GOLFINGIA TRICHOCEPHALA</u>	2	0.354	0	0.0
 <u>ARTHROPODA (CRUSTACEANS)</u>				
<u>AMPHIPCCA</u>				
<u>AMPELISCA ABDITA</u>	1	0.177	1	0.298
<u>AMPELISCA VERRILLI</u>	2	0.354	4	1.190
<u>ARGISSA SP.</u>	0	0.0	1	0.298
<u>COROPHIUM SP.</u>	0	0.0	1	0.298
<u>MONICULODES SP.</u>	2	0.354	0	0.0
<u>PARAPHOXUS SP.</u>	2	0.354	0	0.0
<u>PSEUDOPLATYISCHNOPUS SP.</u>	1	0.177	1	0.298
<u>SYNCFELICIUM SP.</u>	3	0.531	0	0.0
<u>ANOMURA</u>				
<u>ALPINEA PARETII</u>	1	0.177	2	0.595
<u>ERACHYURA</u>				
<u>PINNIXIA RETINENS</u>	1	0.177	0	0.0
<u>CARIDEA</u>				
<u>PROCESSA HEMPHILLI</u>	3	0.531	0	0.0
<u>PROCESSA VICINA</u>	3	0.531	0	0.0
<u>CUNACEA</u>				
<u>CYCLAPSIS SP.</u>	6	1.062	1	0.298
<u>CYCLAPSIS VARIANS</u>	2	0.354	1	0.298
<u>CXYLQSTYLIS SMITHI</u>	5	0.885	4	1.190
<u>LEPTOSTRACA</u>				
<u>NEBALIA SP.</u>	3	0.531	1	0.298
<u>MYSIDACEA</u>				
<u>UNIDENTIFIED SP.</u>	3	0.531	0	0.0
<u>OSTRACODA</u>				
<u>UNIDENTIFIED SP.</u>	5	0.885	1	0.298
<u>PENAEACEA</u>				
<u>PENAEUS DUCRUFUM</u>	1	0.177	0	0.0
<u>TRACHYPENAEUS CONSTRICTUS</u>	1	0.177	2	0.595
<u>TANAIDACEA</u>				
<u>UNIDENTIFIED SP.</u>	1	0.177	0	0.0

ECHINODERMATA

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
5/8/76
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
HOLOTHUROIDEA (SEA CUCUMBERS)				
<u>LEPTOSYNAPTE SP.</u>	10	1.770	0	0.0
HEMICHORDATA				
ENTEROPNEUSTA (ACORN WORMS)				
UNIDENTIFIED SP.	1	0.177	0	0.0
CEPHALOCORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	1	0.177	7	2.083
TOTALS	565		336	
NO. SPECIES		83		47
NO. IND. PER M2		2260		1344
S-W INDEX - H' (LN)		3.3627		2.7387
EVENNESS - J		0.7610		0.7113

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
9/21/76

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNIDARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	2	0.256	0	0.0
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	1	0.128	1	0.433
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	21	2.685	7	3.030
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	9	1.151	0	0.0
PHORONIDA (PHORONIDS)				
<u>PHORONIS ARCHITECTA</u>	2	0.256	0	0.0
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>CYLICHELLA BIDENTATA</u>	0	0.0	1	0.433
<u>NATICA PUSILLA</u>	3	0.384	0	0.0
<u>CLIVELLA BULLULA</u>	3	0.384	1	0.433
PELECYFODA (CLAMS)				
<u>ANADARA FLORIDANA</u>	1	0.128	0	0.0
<u>ERVILLA CONCENTRICA</u>	3	0.384	0	0.0
<u>LAEVICARDIUM PICTUM</u>	1	0.128	0	0.0
<u>LUCINA MULTILINEATA</u>	3	0.384	3	1.299
<u>STRIGILLA MIRABILIS</u>	5	0.639	0	0.0
<u>TELLINA IRIS</u>	4	0.512	3	1.299
<u>TELLINA TEXANA</u>	6	1.023	1	0.433
<u>TELLINA VERSICOLOR</u>	31	3.964	16	6.926
ANNELIDA (SEGMENTED WORMS)				
CLIGGCHAETA				
UNIDENTIFIED SP.	15	1.918	0	0.0
PCLYCHAETA				
<u>AMPHARETE ACUTIFRONS</u>	1	0.128	0	0.0
<u>APOPRIONOSPION PYGMAEA</u>	0	0.0	3	1.299
<u>ARICIDEA FRAGILIS</u>	1	0.128	0	0.0
<u>ARICIDEA SP.</u>	2	0.256	0	0.0
<u>ARMANDIA AGILIS</u>	2	0.256	0	0.0
<u>ARMANDIA MACULATA</u>	3	0.384	1	0.433
<u>AXIOHELLA MUCOSA</u>	1	0.128	0	0.0
<u>BRANIA WELFLEETENSIS</u>	8	1.023	0	0.0
<u>CAPITELLA CAPITATA</u>	0	0.0	8	3.463
<u>CAULLERIELLA SP.</u>	2	0.256	0	0.0
<u>CERATOCEREIS IRRITABILIS</u>	17	2.174	7	3.030
<u>CERATOCEREIS MIRABILIS</u>	2	0.256	0	0.0
<u>CHAETOCNE GAYNEACIA</u>	1	0.128	0	0.0
<u>CHONE SP.</u>	17	2.174	1	0.433
<u>CISTENIDES GULDII</u>	1	0.128	0	0.0
<u>DICPATRA CUPREA</u>	1	0.128	1	0.433
<u>ETECNE LACTEA</u>	3	0.384	0	0.0
<u>GLYCERA AMERICANA</u>	4	0.512	0	0.0
<u>GLYCERA DIBRANCHIATA</u>	2	0.256	1	0.433
<u>GLYCINDE SOLITARIA</u>	1	0.128	0	0.0
<u>GONIACA LITTOREA</u>	3	0.384	0	0.0
<u>GRUEULEPIS MEXICANA</u>	1	0.128	0	0.0
<u>GYPTIS VITTATA</u>	1	0.128	0	0.0
<u>FAPLSCCLOPLOS FOLIOSUS</u>	2	0.256	0	0.0

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

9/21/76

(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>HAPLICSCILCPLCS FRAGILIS</u>	6	0.767	0	0.0
<u>HAPLICSCILCPLCS ROBUSTUS</u>	4	0.512	0	0.0
<u>HETEROMASTUS FILIFORMIS</u>	1	0.128	1	0.433
<u>LUMBFINERIS CRUZENSIS</u>	315	40.281	70	30.303
<u>LUMBFINERIS TETRAURA</u>	9	1.151	0	0.0
<u>MAGELICNA LONGICORNIS</u>	0	0.0	1	0.433
<u>MEDICMASTUS CALIFORNIENSIS</u>	2	0.256	0	0.0
<u>MESOCHAETOPTERUS SAGITTARIUS</u>	2	0.256	1	0.433
<u>NEANTHES SUCCINEA</u>	0	0.0	1	0.433
<u>NEPHYS BUCEFA</u>	1	0.128	0	0.0
<u>NEPHYS PICTA</u>	7	0.895	1	0.433
<u>NOTICMASTUS HEMIPODUS</u>	1	0.128	0	0.0
<u>NOTICMASTUS LATERICEUS</u>	1	0.128	0	0.0
<u>GNUPHIS EREMITA OCULATA</u>	26	3.325	7	3.030
<u>GNUPHIS NEBULOSA</u>	1	0.128	0	0.0
<u>QWENIA FUSIFORMIS</u>	3	0.384	0	0.0
<u>PARANAITES SPECIOSA</u>	1	0.128	0	0.0
<u>PARACNIDES LYRA</u>	1	0.128	1	0.433
<u>PARACNIS FULGENS</u>	3	0.384	0	0.0
<u>PARACNIS SP.</u>	3	0.384	0	0.0
<u>PARAPRIONOSPION PINNATA</u>	0	0.0	2	0.866
<u>PHYLLODOCE ARENAE</u>	7	0.895	10	4.329
<u>PRIONOSPION CRISTATA</u>	25	3.197	12	5.195
<u>RULLIERINEREIS MEXICANA</u>	25	3.197	7	3.030
<u>SCOLELEPIS TEXANA</u>	1	0.128	0	0.0
<u>SCOLCPLCS ARMIGER</u>	40	5.115	7	3.030
<u>SIGAMBRA BASSI</u>	3	0.384	0	0.0
<u>SIGAMBRA TENTACULATA</u>	0	0.0	5	2.165
<u>SPIO PETTIBONEAE</u>	5	1.151	4	1.732
<u>SPIOPHANES BCMBYX</u>	5	0.639	4	1.732
<u>STHENELEAIS ROA</u>	0	0.0	1	0.433
<u>STREPTOSYLLIS ARENAE</u>	1	0.128	0	0.0
 SIPUNCULICA (PEANUT WORMS)				
<u>GOLFINGIA TRICHOCEPHALA</u>	2	0.256	0	0.0
 ARTHROPODA (CRUSTACEANS)				
AMPHIPCA				
<u>ACANTHOHALSTORIUS SP.</u>	10	1.279	0	0.0
<u>AMPELISCA ABDITA</u>	4	0.512	0	0.0
<u>AMPELISCA VERRILLI</u>	19	2.430	6	2.597
<u>ARGISSA SP.</u>	0	0.0	1	0.433
<u>CORCOPHIUM SP.</u>	3	0.384	0	0.0
<u>LISTERIELLA SP.</u>	1	0.128	1	0.433
<u>MONOCULODES SP.</u>	4	0.512	0	0.0
<u>PROTOKHAUSTORIUS SP.</u>	1	0.128	0	0.0
<u>PSEUDOKHAUSTORIUS SP.</u>	1	0.128	0	0.0
<u>PSEUDOPLATYISCHNOPUS SP.</u>	7	0.895	7	3.030
<u>SYNCFELIDIUM SP.</u>	2	0.256	0	0.0
ANOMURA				
<u>ALBUNEA PARETII</u>	1	0.128	0	0.0
CARIDEA				
<u>PROCESSA FEMPHILLI</u>	2	0.256	1	0.433
CUMACEA				
<u>CYCLAFSIS SP.</u>	2	0.256	0	0.0
<u>CYCLAFSIS VARIANS</u>	0	0.0	2	0.866
<u>CYUFCSTYLIS SMITHI</u>	3	0.384	1	0.433
LEPTOSTRACA				
<u>NEBALIA SP.</u>	1	0.128	1	0.433
OSTRACODA				
UNIDENTIFIED SP.	7	0.895	14	6.061

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
5/21/76
(CONTINUED)

SPECIES	NO. CF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
PENAEIDAE				
<u>SICYCNA BREVIROSTRIS</u>	1	0.128	2	0.866
<u>TRACYPENAEUS CONSTRICTUS</u>	4	0.512	1	0.433
ECHINODERMATA				
ECHINOIDEA (SAND DOLLARS; URCHINS)				
<u>MELLITA QUINGUESPERFORATA</u>	4	0.512	0	0.0
<u>HOLOTHURICIDEA (SEA CUCUMBERS)</u>				
<u>LEPTOSYNAPTA SP.</u>	5	0.639	3	1.299
OPHIOURIDEA (BRITTLE STARS)				
UNIDENTIFIED SP.	1	0.128	0	0.0
HEMICHORCATA				
ENTEROPNEUSTA (ACORN WORMS)				
UNIDENTIFIED SP.	1	0.128	0	0.0
CEPHALOCERCATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	5	0.639	1	0.433
TOTALS	782		231	
NO. SPECIES	89		45	
NO. IND. PER M2	3128		924	
S-W INDEX - H' (LN)	2.9755		2.9440	
EVENNESS - J	0.6629		0.7734	

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
10/4/76

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	0	0.0	1	0.164
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	27	3.466	17	2.787
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	4	0.513	1	0.164
PHORONIDA (PHORONIDS)				
PHORONIS ARCHITECTA	1	0.128	0	0.0
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
CYLICHNELLA BIDENTATA	0	0.0	1	0.164
OLIVA SAYANA	1	0.128	0	0.0
OLIVELLA FUSILLA	1	0.128	0	0.0
POLINICES DUPLICATUS	1	0.128	0	0.0
PELECYFODA (CLAMS)				
ANADARA FLORIDANA	3	0.385	0	0.0
ERVILIA CONCENTRICA	3	0.385	1	0.164
LUCINA MULTILINEATA	19	2.439	29	4.754
PERIPLOMA MARGARITACEUM	8	1.027	4	0.656
PITAR SIMPSONI	1	0.128	0	0.0
STRIGILLA MIRABILIS	1	0.128	0	0.0
TELLINA AEQUISTRIATA	0	0.0	1	0.164
TELLINA IRIS	3	0.385	2	0.328
TELLINA TEXANA	5	0.642	4	0.656
TELLINA VERSICOLOR	33	4.236	19	3.115
VENERIDAE UNIDENTIFIED SP.	1	0.128	1	0.164
ANNELIDA (SEGMENTED WORMS)				
GLIGOCHAETA				
UNIDENTIFIED SP.	23	2.953	21	3.443
POLYCHAETA				
AGLACPHAMUS VERRILLI	1	0.128	0	0.0
AMPHARETE ACUTIFRONS	1	0.128	1	0.164
APOPTIONOSPION PYGMAEA	1	0.128	0	0.0
ARICIDEA FRAGILIS	1	0.128	1	0.164
ARICIDEA SP.	1	0.128	0	0.0
ARMANDIA AGILIS	0	0.0	1	0.164
ARMANDIA MACULATA	0	0.0	3	0.492
ASYCHIS CAROLINAE	2	0.257	19	3.115
BRANIA WELFLESTENSIS	2	0.257	3	0.492
CAPITELLA CAPITATA	0	0.0	2	0.328
CALLIERIELLA SP.	0	0.0	1	0.164
CERATONEREIS IRRITABILIS	27	3.466	44	7.213
CERATONEREIS MIRABILIS	0	0.0	2	0.328
CHAETOCONE GAYHEADIA	0	0.0	2	0.328
CHAETOCONE SETOSA	1	0.128	0	0.0
CHONE SP.	6	0.770	3	0.492
CISTENIDES GOULDII	4	0.513	2	0.328
DASYBRANCHIUS LUMBRICOIDES	0	0.0	1	0.164
DIOPATRA CLYPEA	1	0.128	1	0.164
ETONE LACTEA	1	0.128	4	0.656
GLYCERA AMERICANA	1	0.128	4	0.656
GLYCERA DIBRANCHIATA	5	0.642	2	0.328
GLYCERA SP.	0	0.0	1	0.164
GONIACA LITTOREA	15	1.926	1	0.164

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

10/4/76

(CONTINUED)

SPECIES	NO. CF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>GYPTIS VITTATA</u>	2	0.257	2	0.328
<u>HAPLISCICLIDIS FOLIOSUS</u>	2	0.257	5	0.820
<u>HAPLISCICLIDIS FRAGILIS</u>	10	1.284	1	0.164
<u>HAPLISCICLIDIS ROBUSTUS</u>	1	0.128	1	0.164
<u>HARMITHES LUNULATA</u>	1	0.128	0	0.0
<u>HETEROMASTUS FILIFORMIS</u>	0	0.0	4	0.656
<u>ISCLIA PULCHELLA</u>	1	0.128	0	0.0
<u>LUMBRINERIS CRUZENSIS</u>	196	25.160	48	7.869
<u>LUMBRINERIS TETRAURA</u>	46	5.905	27	4.426
<u>MACRICLYMENE ZONALIS</u>	2	0.257	1	0.164
<u>MAGELCNA SP.</u>	1	0.128	0	0.0
<u>MEDICMASTUS CALIFORNIENSIS</u>	1	0.128	3	0.492
<u>MEGALCMA BIOCULATUM</u>	0	0.0	4	0.656
<u>MESOCIAETOPTERUS SAGITTARIUS</u>	1	0.128	1	0.164
<u>MICROCSPID PIGMENTATA</u>	1	0.128	0	0.0
<u>MYRICCILE SP.</u>	0	0.0	1	0.164
<u>NEANTHES SUCCINEA</u>	1	0.128	0	0.0
<u>NEPHYS PICTA</u>	11	1.412	2	0.328
<u>NOTOMASTUS HEMIPODUS</u>	5	0.642	3	0.492
<u>NOTOMASTUS LATERICEUS</u>	1	0.128	0	0.0
<u>ONUPHIS FREMITA OCULATA</u>	36	4.621	22	3.607
<u>ONUPHIS NEBULOSA</u>	1	0.128	0	0.0
<u>OWENIA FUSIFORMIS</u>	1	0.128	7	1.148
<u>PARAONICES LYRA</u>	15	1.926	7	1.148
<u>PARACNIS FULGENS</u>	6	0.770	1	0.164
<u>PARACNIS SP.</u>	4	0.513	1	0.164
<u>PARAFRICNSPIC PINNATA</u>	4	0.513	20	3.279
<u>PHYLLIDOCCE ARENAE</u>	2	0.257	9	1.475
<u>POLYIDOCNTES LUPINA</u>	1	0.128	0	0.0
<u>PRICNSPIC CRISTATA</u>	55	7.060	51	8.361
<u>RULLIERINEREIS MEXICANA</u>	29	3.723	17	2.787
<u>SCCICLIDIS ARMIGER</u>	47	6.033	11	1.803
<u>SCCICLIDIS RUERA</u>	1	0.128	2	0.328
<u>SIGALION ARENICOLA</u>	1	0.128	0	0.0
<u>SIGAMERA TENTACULATA</u>	0	0.0	21	3.443
<u>SPIO PETTIBONEAE</u>	3	0.385	3	0.492
<u>SPIOPTANES BOMBYX</u>	13	1.669	11	1.803
<u>STHENELEIS BOA</u>	0	0.0	1	0.164
 SIPUNCULIDA (PEANUT WORMS)				
<u>GOLFINGIA TRICHOCEPHALA</u>	3	0.385	6	0.984
 ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>AMPELISCA AEDITA</u>	5	0.642	12	1.967
<u>AMPELISCA VERRILLI</u>	16	2.054	15	2.459
<u>COROPHIUM SP.</u>	0	0.0	1	0.164
<u>LISTRIELLA SP.</u>	0	0.0	3	0.492
<u>MONOCULODES SP.</u>	2	0.257	1	0.164
<u>PARAPHOXUS SP.</u>	1	0.128	0	0.0
<u>PSEUDOHAASTORIUS SP.</u>	0	0.0	2	0.328
<u>PSEUDOPLATYISCHNOPUS SP.</u>	2	0.257	4	0.656
ANOMURA				
<u>ALBUNEA PARETI</u>	4	0.513	12	1.967
<u>EUCERAMUS PRAELONGUS</u>	1	0.128	0	0.0
BRACHYURA				
<u>CALLINECES SAPIDUS</u>	1	0.128	0	0.0
<u>PERSEPHONA P. AQUILONARIS</u>	1	0.128	0	0.0
<u>PINNIXIA SAYANA</u>	0	0.0	3	0.492
CALLINANASSIDAE				
<u>CALLINANASSA JAMAICENSE</u>	2	0.257	1	0.164

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

10/4/76
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CARIDEA				
<u>PROCESSA HEMPHILLI</u>	2	0.257	2	0.328
CUMACEA				
<u>CYCLAPSI SP.</u>	6	0.770	2	0.328
<u>CYCLAPSI VARIANS</u>	0	0.0	2	0.328
<u>CYLUROSTYLIS SMITHI</u>	3	0.385	5	0.820
MYSIDACEA				
UNIDENTIFIED SP.	2	0.257	4	0.656
OSTRACODA				
UNIDENTIFIED SP.	6	0.770	14	2.295
PENAEIDAE				
<u>SICYONIA BREVIROSTRIS</u>	1	0.128	1	0.164
<u>TRACHYPENAEUS CONSTRICTUS</u>	6	0.770	1	0.164
TANAIDACEA				
UNIDENTIFIED SP.	0	0.0	1	0.164
ECHINODERMATA				
ASTEROIDEA (STARFISHES)				
<u>ASTROPECTEN ARTICULATUS</u>	2	0.257	3	0.492
HOLOTHUROIDEA (SEA CUCUMBERS)				
<u>LEPTOSYNAPIA SP.</u>	5	0.642	26	4.262
OPHIURIDEA (BRITTLE STARS)				
<u>OPHIOPHRAGMUS WURDEMANI</u>	1	0.128	0	0.0
CEPHALOCHOERDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	0	0.0	2	0.328
TOTALS	779		610	
NO. SPECIES		87		85
NO. IND. PER M2		3116		2440
S-H INDEX - H'(LN)		3.2650		3.7160
EVENNESS - J		0.7311		0.8364

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
10/18/76

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNIDARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	1	0.102	0	0.0
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	2	0.204	0	0.0
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	15	1.534	4	1.423
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	32	3.272	3	1.068
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
OLIVA SAYANA	1	0.102	0	0.0
CLIVELLA BULLULA	0	0.0	1	0.356
TEREBA DISLOCATA	3	0.307	0	0.0
PELECYFODA (CLAMS)				
ERVILIA CONCENTRICA	6	0.613	1	0.356
LUCINA MULTILINEATA	5	0.511	11	3.915
MACROCALLISTA NIMBOSA	1	0.102	0	0.0
PERIPLOMA MARGARITACEUM	1	0.102	0	0.0
STRIGILLA MIRABILIS	17	1.738	0	0.0
TELLINA IRIS	2	0.204	0	0.0
TELLINA TEXANA	5	0.520	1	0.356
TELLINA VERSICOLOR	26	2.658	5	1.779
ANNELIDA (SEGMENTED WORMS)				
CLIGGCHAETA				
UNIDENTIFIED SP.	19	1.943	3	1.068
POLYCHAETA				
APOPRIONOSPID PYGMAEA	0	0.0	3	1.068
ARICIDEA CERRUTI	1	0.102	0	0.0
ARICIDEA SUECICA	7	0.716	0	0.0
ARMANDIA AGILIS	1	0.102	1	0.356
ARMANDIA MACULATA	10	1.022	0	0.0
BRANIA WELFLEETENSIS	13	1.329	0	0.0
CERATONEREIS IRRITABILIS	5	0.511	11	3.915
CHAELOZONE SETOSA	0	0.0	2	0.712
CHONE SP.	10	1.022	0	0.0
DIOPATRA CUPREA	1	0.102	0	0.0
DORVILLEA SOCIABILIS	3	0.307	0	0.0
EIEONE LACTEA	4	0.409	1	0.356
GLYCERA AMERICANA	9	0.920	9	3.203
GLYCERA DIBRANCHIATA	2	0.204	0	0.0
GONIACA LITICREA	1	0.102	0	0.0
GYPTIS VITTATA	2	0.204	0	0.0
HAPLOSCILLICPLCS FOLIOSUS	4	0.409	2	2.847
HAPLOSCILLICPLCS FRAGILIS	1	0.102	0	0.0
HAPLOSCILLICPLCS ROBUSTUS	1	0.102	0	0.0
HARMCTHCE LUNULATA	0	0.0	1	0.356
LUMBFINERIS CRUZENSIS	442	45.194	72	25.623
LUMBFINERIS TETRAURA	2	0.204	0	0.0
MAGELINA SP.	1	0.102	0	0.0
MEDICMASTUS CALIFORNIENSIS	1	0.102	1	0.356
NEANTHES ACUMINATA	1	0.102	1	0.356
NEPHTYS PICTA	10	1.022	2	0.712
NOTOMASTUS HEMIPODUS	2	0.204	4	1.423

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
10/18/76
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>NOTICMASTUS LATERICEUS</u>	0	0.0	1	0.356
<u>CNUPHIS EREMITA CCULATA</u>	1	0.102	6	2.135
<u>CRBINIA RISERI</u>	1	0.102	0	0.0
<u>CHEMIA FUSIFORMIS</u>	1	0.102	0	0.0
<u>PARANAITES SPECIOSA</u>	2	0.204	0	0.0
<u>PARACNIDES LYRA</u>	1	0.102	0	0.0
<u>PARACNIS FULGENS</u>	2	0.204	0	0.0
<u>PARACNIS SP.</u>	1	0.102	0	0.0
<u>PARAPRIONOSPIO PINNATA</u>	1	0.102	3	1.068
<u>PHYLLODOCE ARENAE</u>	0	0.0	2	0.712
<u>PRIONOSPIO CRISTATA</u>	77	7.873	27	9.609
<u>RULLIERINEREIS MEXICANA</u>	15	1.534	14	4.982
<u>SCOLELEPIS TEXANA</u>	1	0.102	0	0.0
<u>SCOLOPLOS ARMIGER</u>	37	3.783	0	0.0
<u>SCOLOPLOS RUBRA</u>	1	0.102	0	0.0
<u>SIGAMBRA BASSI</u>	3	0.307	0	0.0
<u>SIGAMBRA TENTACULATA</u>	0	0.0	3	1.068
<u>SPIO PETTIBONEAE</u>	2	0.204	2	0.712
<u>SPIOPLANES BOMBAYX</u>	3	0.307	4	1.423

ARTHROPODA (CRUSTACEANS)

<u>AMPHIPODA</u>				
<u>AMPELISCA VERRILLI</u>	14	1.431	29	10.320
<u>ARGISSA SP.</u>	1	0.102	0	0.0
<u>LITRIELLA SP.</u>	5	0.511	3	1.068
<u>MONOCILLODES SP.</u>	19	1.943	6	2.135
<u>PARAFHOXUS SP.</u>	1	0.102	0	0.0
<u>PHCTIS SP.</u>	1	0.102	0	0.0
<u>PROTICHAUSTORIUS SP.</u>	7	0.716	0	0.0
<u>PSEUDICHAUSTORIUS SP.</u>	1	0.102	0	0.0
<u>PSEUDOPLATYLSCHNCPUS SP.</u>	28	2.863	20	7.117
<u>SYNCELIDIUM SP.</u>	3	0.307	1	0.356
<u>TIRON EIOSCELLATUS</u>	0	0.0	1	0.356
<u>ANOMURA</u>				
<u>ALBUNEA FARETII</u>	3	0.307	4	1.423
<u>EUCERAMUS PRAELONGUS</u>	1	0.102	2	0.712
<u>PAGURUS SP.</u>	1	0.102	1	0.356
<u>CALLINANASSIDAE</u>				
<u>CALLINANASSA JAMAICENSE</u>	0	0.0	1	0.356
<u>CARIDEA</u>				
<u>UGYRIDES LIMICOLA</u>	0	0.0	1	0.356
<u>CUMACEA</u>				
<u>CYCLAPSIS SP.</u>	31	3.170	1	0.356
<u>ORYZOSTYLIS SMITHI</u>	0	0.0	1	0.356
<u>MYSTICACEA</u>				
<u>UNIDENTIFIED SP.</u>	1	0.102	0	0.0
<u>OSTRACCA</u>				
<u>UNIDENTIFIED SP.</u>	8	0.818	1	0.356

ECHINODERMATA

<u>ASTEROIDEA (STARFISHES)</u>				
<u>ASTROPECTEN ARTICULATUS</u>	1	0.102	0	0.0
<u>ECHINOIDEA (SAND DOLLARS; URCHINS)</u>				
<u>MELLITA QUINQUESPERFORATA</u>	4	0.409	0	0.0
<u>HOLOTHUROIDEA (SEA CUCUMBERS)</u>				
<u>LEPTISYNAFTA SP.</u>	1	0.102	1	0.356
<u>OPHIURICEA (BRITTLE STARS)</u>				
<u>OPHIOPHRAGMUS MURDEMANI</u>	2	0.204	0	0.0
<u>UNIDENTIFIED SP.</u>	1	0.102	0	0.0

CEPHALOCORDATA (LANCELETS)

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
11/1/76

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNIDARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	3	0.397	0	0.0
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	2	0.265	2	0.391
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	18	2.384	6	1.174
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	8	1.060	1	0.196
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
NATICA PUSILLA	1	0.132	0	0.0
OLIVELLA BULLULA	1	0.132	3	0.587
TEREBRA DISLOCATA	1	0.132	0	0.0
PELECYFODA (CLAMS)				
CARDIOMYA COSTELLATA	0	0.0	1	0.196
ERVILIA CONCENTRICA	1	0.132	0	0.0
LUCINA MULTILINEATA	2	0.265	14	2.740
SEMELE PROFICUA	0	0.0	1	0.196
STRIGILLA MIRABILIS	10	1.325	0	0.0
TELLINA A. TAYLORIANA	0	0.0	1	0.196
TELLINA IRIS	0	0.0	3	0.587
TELLINA TEXANA	4	0.530	0	0.0
TELLINA VERSICOLOR	16	2.119	7	1.370
ANNELIDA (SEGMENTED WORMS)				
OLIGOCCHAETA				
UNIDENTIFIED SP.	35	4.636	1	0.196
POLYCHAETA				
APOPRIONOSPIO PYGMAEA	1	0.132	0	0.0
ARICIDEA SUECICA	5	0.662	0	0.0
ARMANDIA MACULATA	5	0.662	2	0.391
BRANIA CLAVATA	1	0.132	0	0.0
BRANIA WELFLEETENSIS	12	1.589	0	0.0
CAULLERIELLA SP.	1	0.132	0	0.0
CERATONEREIS IRRITABILIS	11	1.457	18	3.523
CHAETOXONE SETOSA	1	0.132	1	0.196
CHONE SP.	7	0.927	0	0.0
ETEOPE LACTEA	2	0.265	0	0.0
EUNICE ANTENNATA	1	0.132	0	0.0
EURYTHOE COMPLANATA	0	0.0	1	0.196
GLYCERA AMERICANA	7	0.927	8	1.566
GLYCERA DIBRANCHIATA	2	0.265	1	0.196
GONIADA LITTORAE	2	0.265	1	0.196
GYPTIS VITTATA	7	0.927	0	0.0
HAPLOCYCLICUS FOLIOSUS	7	0.927	0	0.0
HAPLOCYCLICUS FRAGILIS	5	0.662	2	0.391
HAPLOCYCLICUS ROBUSTUS	0	0.0	1	0.196
LUMBRINERIS CRLZENSI	342	45.298	216	42.270
LUMBRINERIS TETRAURA	4	0.530	1	0.196
MAGELCNA LONGICORNIS	0	0.0	2	0.391
MEDICMASTUS CALIFORNIENSIS	2	0.265	2	0.391
NEANTHES SUCCINEA	0	0.0	1	0.196
NEPHIYS BUCERA	2	0.265	0	0.0
NEPHIYS PICTA	5	1.192	1	0.196

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
10/18/76
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>BRANCHIOSTOMA FLORIDAE</u>	21	2.147	1	0.356
TOTALS	978		281	
NO. SPECIES		77		46
NO. IND. PER M2		3912		1124
S-W INDEX - H'(LN)		2.6227		2.9372
EVENNESS - J		0.6038		0.7672

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

11/1/76
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>NOTOMASTUS HEMIPODUS</u>	1	0.132	1	0.196
<u>ONUPHIS EREMITA OCOLATA</u>	11	1.457	6	1.174
<u>ONUPHIS NEBULOSA</u>	2	0.265	2	0.391
<u>ORBINIA RISERI</u>	1	0.132	0	0.0
<u>OWENIA FLAIFIFORMIS</u>	1	0.132	0	0.0
<u>PARACNIDES LYRA</u>	1	0.132	0	0.0
<u>PARACNIS FULGERS</u>	6	0.795	1	0.196
<u>PARAFRINCSPIC PINNATA</u>	0	0.0	2	1.566
<u>PHYLLIDOCCE ARENAE</u>	2	0.265	1	0.196
<u>PRINCSPIC CRISTATA</u>	15	1.987	14	2.740
<u>RULLIERINEREIS MEXICANA</u>	11	1.457	17	3.327
<u>SCOLICELUS ARMIGER</u>	30	3.974	10	1.957
<u>SCOLICELUS RUBRA</u>	3	0.397	0	0.0
<u>SIGAMERA BASSI</u>	1	0.132	0	0.0
<u>SIGAMERA TENTACULATA</u>	0	0.0	1	0.196
<u>SPIO PETTIBONEAE</u>	1	0.132	2	0.391
<u>SPIOPHANES BOMBYX</u>	0	0.0	7	1.370
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>ACANTHOFAUSTORIUS SP.</u>	2	0.265	0	0.0
<u>AMPELISCA VERRILLI</u>	5	0.662	29	5.675
<u>LISTRIELLA SP.</u>	3	0.397	3	0.587
<u>MONOCULODES SP.</u>	8	1.060	18	3.523
<u>PROTOFAUSTORIUS SP.</u>	6	0.795	0	0.0
<u>PSEUDOFALSTORIUS SP.</u>	18	2.384	0	0.0
<u>PSEUDOPLATYISCHNOPLS SP.</u>	65	8.609	66	12.916
<u>SYNCELIDIDIUM SP.</u>	0	0.0	1	0.196
ANOMURA				
<u>ALBUNEA PARETI</u>	0	0.0	6	1.174
BRACHYURA				
<u>OVALIFES CCELLATUS</u>	3	0.397	1	0.196
<u>PINNIXIA SAYANA</u>	0	0.0	1	0.196
CALLINANASSIDAE				
<u>CALLINANASSA JAMAICENSE</u>	1	0.132	0	0.0
CARIDEA				
<u>LEPTOCHELA SERRATORBITA</u>	0	0.0	1	0.196
<u>PROCESSA HEMPHILLI</u>	2	0.265	2	0.391
CUMACEA				
<u>CYCLAPSIS SP.</u>	2	0.265	1	0.196
<u>CYCLAPSIS VARIANS</u>	2	0.265	0	0.0
MYSIDACEA				
UNIDENTIFIED SP.	1	0.132	2	0.391
OSTRACCA				
UNIDENTIFIED SP.	1	0.132	2	0.391
ECHINODERMATA				
ASTEROIDEA (STARFISHES)				
<u>ASTROPECTEN ARTICULATUS</u>	2	0.265	2	0.391
ECHINOIDEA (SAND DOLLARS; URCHINS)				
<u>MELLITA QUINQUESPERFORATA</u>	1	0.132	0	0.0
HOLOTHUROIDEA (SEA CUCUMBERS)				
<u>LEPTOSYNAPTA SP.</u>	1	0.132	2	0.391
OPHIURIDEA (BRITTLE STARS)				
<u>OPHIOPHRAGMUS WURDEMANI</u>	0	0.0	1	0.196
CEPHALOCORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	8	1.060	5	0.978

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

11/1/76
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT

TOTALS	755		511	
NO. SPECIES	67		55	
NO. IND. PER M2	3020		2044	
S-H INDEX - H'(LN)	2.6057		2.4953	
EVENNESS - J	0.6197		0.6227	

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
12/1/76

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	29	3.766	15	1.695
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	26	3.377	2	0.226
PHORONIDA (PHORONIDS)				
<u>PHORONIS ARCHITECTA</u>	3	0.390	0	0.0
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>NASSARIUS ACUTUS</u>	1	0.130	0	0.0
<u>POLINICES DUPLICATUS</u>	2	0.260	2	0.226
PELECYPODA (CLAMS)				
<u>ERVILIA CONCENTRICA</u>	1	0.130	0	0.0
<u>LUCINA MULTILINEATA</u>	12	1.558	6	0.678
<u>PERIELCNA MARGARITACEUM</u>	4	0.519	0	0.0
<u>SEMELE PFCFICUA</u>	2	0.260	0	0.0
<u>STRIGILLA MIRABILIS</u>	2	0.260	6	0.678
<u>TELLINA TEXANA</u>	0	0.0	5	0.565
<u>TELLINA VERTICOLOR</u>	13	1.688	6	0.678
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	45	5.844	9	1.017
POLYCHAETA				
<u>AGLAPHAMUS VERRILLI</u>	1	0.130	0	0.0
<u>AMPHARETE ACUTIFRONS</u>	1	0.130	0	0.0
<u>APCOPHANCUS PYGMAEA</u>	3	0.390	3	0.339
<u>ARICIDEA CERFUTII</u>	11	1.429	1	0.113
<u>ARICIDEA FRAGILIS</u>	1	0.130	1	0.113
<u>ARMANDIA AGILIS</u>	2	0.260	6	0.678
<u>ARMANDIA MACULATA</u>	5	0.649	9	1.017
<u>AXIOFELLA MUCOSA</u>	1	0.130	0	0.0
<u>ERANIA CLAVATA</u>	2	0.260	1	0.113
<u>ERANIA WELFLEETENSIS</u>	2	0.260	0	0.0
<u>CABIRA INCERTA</u>	0	0.0	1	0.113
<u>CERATONEREIS IRRITABILIS</u>	2	0.260	6	0.678
<u>CHAETZONE SETOSA</u>	0	0.0	1	0.113
<u>CHONE SP.</u>	8	1.039	0	0.0
<u>CISTENICES GOULDII</u>	2	0.260	0	0.0
<u>ETECNE LACTEA</u>	5	0.649	4	0.452
<u>GLYCERA AMERICANA</u>	3	0.390	8	0.904
<u>GLYCERA DIBRANCHIATA</u>	1	0.130	0	0.0
<u>GONIADA LITTORAE</u>	7	0.909	1	0.113
<u>GYPTIS VITTATA</u>	6	0.779	0	0.0
<u>HAPLCSCOLOPLOS FOLIOLUS</u>	8	1.039	11	1.243
<u>HAPLCSCOLOPLOS FRAGILIS</u>	10	1.299	3	0.339
<u>HAPLCSCOLOPLOS ROLLSIUS</u>	1	0.130	0	0.0
<u>ISOLCA PULCHELLA</u>	1	0.130	0	0.0
<u>LUMBRINERIS CRUZEINSIS</u>	240	31.169	429	48.475
<u>LUMBRINERIS TENUIS</u>	21	2.727	5	0.565
<u>MAGELCNA LONGICORNIS</u>	0	0.0	2	0.226
<u>MAGELCNA PETTIBONEAE</u>	1	0.130	0	0.0
<u>MAGELCNA RIOJAI</u>	0	0.0	1	0.113
<u>MEDICMASTUS CALIFORNIENSIS</u>	2	0.260	0	0.0
<u>MINUSPIO CIRRIFERA</u>	1	0.130	0	0.0
<u>NEANTHES ACUMINATA</u>	0	0.0	1	0.113
<u>NEPHYS BUCERA</u>	1	0.130	1	0.113
<u>NEPHYS PICTA</u>	0	0.0	2	0.226

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
12/1/76
(CONTINUED)

SPECIES	NO. CF IND. (C.)		NO. OF INC. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>NOTOMASTUS HEMIPODUS</u>	1	0.130	4	0.452
<u>NOTOMASTUS LATERICEUS</u>	2	0.260	0	0.0
<u>ONUPFIS EREMITA OCLATA</u>	28	3.636	15	1.695
<u>ONUPFIS NEBULOSA</u>	4	0.519	0	0.0
<u>OWENIA FUSIFORMIS</u>	1	0.130	0	0.0
<u>PARACNIDES LYRA</u>	4	0.519	0	0.0
<u>PARACNIS FLIGENS</u>	1	0.130	3	0.339
<u>PARAFFINCSPIO PINNATA</u>	0	0.0	3	0.339
<u>PHYLLCOCCE ARENAE</u>	0	0.0	4	0.452
<u>PRICACSPIC CRISTATA</u>	41	5.325	55	6.215
<u>RULLIERTINEREIS MEXICANA</u>	12	1.558	9	1.017
<u>SCCLIFLIS ARMIGER</u>	34	4.416	44	4.972
<u>SCOLCPLIS RUERA</u>	1	0.130	0	0.0
<u>SIGAMBRA TENTACULATA</u>	1	0.130	0	0.0
<u>SPIO PETTIBONEAE</u>	1	0.130	1	0.113
<u>SPIOPANES BOMBYX</u>	4	0.519	5	0.565
ARTHROPODA (CRUSTACEANS)				
AMPHIPCCA				
<u>ACANTHCHAUSTORIUS SP.</u>	1	0.130	3	0.339
<u>AMPELISCA VERRILLI</u>	10	1.299	23	2.599
<u>HYPERIA SP.</u>	14	1.818	0	0.0
<u>LISTRIELLA SP.</u>	4	0.519	4	0.452
<u>MONCCULDES SP.</u>	4	0.519	7	0.791
<u>PROCHAUSTORIUS SP.</u>	0	0.0	9	1.017
<u>PSEUDOAUSTORIUS SP.</u>	2	0.260	8	0.904
<u>PSEUDOPLATYISCHNOPUS SP.</u>	79	10.260	117	12.220
<u>SYNCFELIDIUM SP.</u>	1	0.130	1	0.113
<u>TIRON SP.</u>	1	0.130	0	0.0
ANCMURA				
<u>ALBUNEA PARETII</u>	4	0.519	6	0.678
<u>PAGURUS LONGICARPUS</u>	2	0.260	0	0.0
ERACHYURA				
<u>OVALIFES CCELLATUS</u>	2	0.260	1	0.113
CALLIANASSIDAE				
<u>CALLIANASSA JAMAICENSE</u>	1	0.130	0	0.0
CARIDEA				
<u>HIPPOLYTE PLEURACANTHA</u>	1	0.130	0	0.0
<u>LEPTOCHELA SERRATORBITA</u>	0	0.0	2	0.226
CUMACEA				
<u>CYCLAFSIS SP.</u>	1	0.130	1	0.113
<u>CYCLAFSIS VARIANS</u>	2	0.260	0	0.0
OSTRACCCA				
UNIDENTIFIED SP.	3	0.390	2	0.226
PENAIDEA				
<u>TRACHYPENAEUS CONSTRICTUS</u>	1	0.130	1	0.113
ECHINODERMATA				
HOLOTHIROIDEA (SEA CUCUMBERS)				
<u>LEPTOSYNAPTA SP.</u>	3	0.390	0	0.0
CEPHALOCCHORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	10	1.299	5	1.017
TOTALS	770		865	
NO. SPECIES		74		54
NO. IND. PER M2		3080		3540
S-W INDEX - H'(LN)		2.9874		2.2595
EVENNESS - J		0.6941		0.5664

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
1/5/77

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNIDARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	3	0.696	0	0.0
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	9	2.088	13	2.372
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	8	1.856	1	0.182
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
ACTECCINA CANDEI	1	0.232	0	0.0
POLINICES DUPLICATUS	0	0.0	1	0.182
PELECYPODA (CLAMS)				
LUCINA MULTILINEATA	1	0.232	3	0.547
PERIPLCMA MARGARITACEUM	0	0.0	3	0.547
STRIGILLA MIRABILIS	5	1.160	0	0.0
TELLINA TEXANA	1	0.232	0	0.0
TELLINA VERSICOLOR	18	4.176	1	0.182
ANNELIDA (SEGMENTED WORMS)				
CLIGOCHAETA				
UNIDENTIFIED SP.	57	13.225	2	0.365
POLYCHAETA				
AGLADPHAMUS VERRILLI	1	0.232	0	0.0
APOPRIONOSPPIO PYGMAEA	0	0.0	1	0.182
ARICIDEA CERRUTI	2	0.464	0	0.0
ARMANDIA AGILIS	1	0.232	3	0.547
ARMANDIA MACULATA	3	0.696	0	0.0
BRANIA WELFLEETENSIS	1	0.232	0	0.0
CERATOCEREIS IRRITABILIS	0	0.0	6	1.095
CHCNE SP.	6	1.392	3	0.547
CISTENIDES GOULDII	0	0.0	1	0.182
DICPATRA CUPREA	1	0.232	0	0.0
GLYCERA AMERICANA	8	1.856	4	0.730
GONIADA LITTORAEA	1	0.232	0	0.0
GYPTIS VITTATA	2	0.464	0	0.0
HAPLISCOCLOPLOS FOLIOSUS	2	0.464	0	0.0
HAPLISCOCLOPLOS FRAGILIS	0	0.0	1	0.182
LUMBRINERIS ACUTUS	4	0.928	0	0.0
LUMBRINERIS CRUZENSIS	15	3.480	343	62.591
LUMBRINERIS TENUIIS	2	0.464	0	0.0
LUMBRINERIS TETRAURA	4	0.928	0	0.0
MACROCGLYMENE ZONALIS	1	0.232	1	0.182
MAGELCNA LONGICORNIS	1	0.232	0	0.0
MAGELCNA SP.	2	0.464	0	0.0
NEPHTYS BUCERA	1	0.232	0	0.0
NEPHTYS PICTA	4	0.928	0	0.0
NOTOMASTUS HEMIPODUS	2	0.464	0	0.0
NOTOMASTUS LATERICEUS	0	0.0	1	0.182
CNUPFIS EREMITA OCLATA	0	0.0	3	0.547
PARACNIDES LYRA	0	0.0	1	0.182
PARACNIS FULGENS	1	0.232	0	0.0
PARAPRIONOSPPIO PINNATA	0	0.0	3	0.547
PHYLLODOCE ARENAE	0	0.0	3	0.547
PRIONOSPPIO CRISTATA	16	3.712	35	6.387
RULLIERINEREIS MEXICANA	13	3.016	2	0.365
SCOLELEPIS SQUAMATA	2	0.464	0	0.0
SCOLELEPIS TEXANA	3	0.696	0	0.0

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
1/5/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>SCOLCLOPS ARMIGER</u>	35	8.121	23	4.197
<u>SIGAMBRA BASSI</u>	1	0.232	0	0.0
<u>SPIO PETTIBONEAE</u>	1	0.232	0	0.0
<u>SPIOPHANES BOMBYX</u>	6	1.392	11	2.007
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>ACANTHOHAUSTORIUS SP.</u>	3	0.696	0	0.0
<u>AMPELISCA VERRILLI</u>	1	0.232	10	1.825
<u>ERICHTHONIUS SP.</u>	2	0.464	0	0.0
<u>LISTRIELLA SP.</u>	2	0.464	1	0.182
<u>MONOCULODES SP.</u>	1	0.232	1	0.182
<u>PROTOHALSTORIUS SP.</u>	15	3.480	4	0.730
<u>PSEUDOHALSTORIUS SP.</u>	40	9.281	4	0.730
<u>PSEUDOPLATYISCHNOPUS SP.</u>	55	22.042	45	8.212
<u>SYNCHELIDIUM SP.</u>	0	0.0	3	0.547
ANOMURA				
<u>PAGURUS LONGICARPUS</u>	2	0.464	0	0.0
BRACHYURA				
<u>OVALIPES OCELLATUS</u>	2	0.464	2	0.365
<u>PINNIXIA SAYANA</u>	2	0.464	1	0.182
CARIDEA				
<u>HIPPELYTE FLEURACANTHA</u>	1	0.232	0	0.0
CUMACEA				
<u>CYCLAPSIS VARIANS</u>	1	0.232	0	0.0
ECHINODERMATA				
ECHINOIDEA (SAND DOLLARS; URCHINS)				
<u>MELLITA QUINQUESPERFORATA</u>	1	0.232	0	0.0
HOLOTHUROIDEA (SEA CUCUMBERS)				
<u>LEPTOSYNAFTA SP.</u>	2	0.464	3	0.547
HEMICHORDATA				
ENTEROPNEUSTA (ACORN WORMS)				
UNIDENTIFIED SP.	1	0.232	0	0.0
CEPHALOCORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	15	3.480	5	0.912
TOTALS	431		548	
NO. SPECIES		56		36
NO. IND. PER M2		1724		2192
S-W INDEX - H'(LN)		3.0102		1.7037
EVENNESS - J		0.7478		0.4754

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
2/2/77

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	16	4.222	16	2.893
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	18	4.749	0	0.0
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
ANACHIS FLORIDANA	1	0.264	0	0.0
NATICA PLSILLA	4	1.055	1	0.181
OLIVA SAYANA	0	0.0	1	0.181
POLINICES DUPLICATUS	1	0.264	0	0.0
TURBOCILLA CONRADI	1	0.264	0	0.0
PELECYPODA (CLAMS)				
LUCINA MULTILINEATA	6	1.583	15	2.712
MACROCALLISTA NIMBOSA	2	0.528	0	0.0
PERIPLOMA MARGARITACEUM	1	0.264	0	0.0
PITAR SIMPSONI	1	0.264	0	0.0
STRIGILLA MIRABILIS	6	1.583	0	0.0
TELLINA TEXANA	2	0.528	1	0.181
TELLINA VERSICOLOR	7	1.847	3	0.542
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	35	9.235	4	0.723
POLYCHAETA				
AGLAPPELUS VERRILLI	0	0.0	1	0.181
APORRHOCHORDYLUS PYGMAEA	1	0.264	0	0.0
ARICICEA CERRUTI	0	0.0	1	0.181
ARICICEA FRAGILIS	0	0.0	2	0.362
ARMANCIA AGILIS	1	0.264	1	0.181
ARMANDIA MACULATA	6	1.583	0	0.0
BRANIA CLAVATA	3	0.792	0	0.0
BRANIA WELFLEETENSIS	1	0.264	0	0.0
CHAETOPUS SEIOSA	0	0.0	2	0.362
CHONE SP.	4	1.055	4	0.723
DIOPATRA CUPREA	0	0.0	2	0.362
ETEONE LACTEA	0	0.0	1	0.181
GLYCERA AMERICANA	1	0.264	0	0.0
GLYCERA DIBRANCHIATA	0	0.0	2	0.362
GONIADA LITTORAE	1	0.264	2	0.362
GYPTIS VITTATA	1	0.264	0	0.0
HAPLOSCOLOPUS FOLIOLUS	1	0.264	0	0.0
HAPLOSCOLOPUS FRAGILIS	2	0.528	1	0.181
LUMBRINERIS CRUZENSIS	6	1.583	325	52.770
LUMBRINERIS TETRAURA	5	1.319	1	0.181
MAGELONA LONGICORNIS	0	0.0	4	0.723
MAGELONA SP.	1	0.264	0	0.0
MEDICMASTUS CALIFORNIENSIS	0	0.0	2	0.362
NEANTHES SP.	0	0.0	2	0.362
NEPHLYS BUCERA	1	0.264	0	0.0
NEPHLYS PICTA	3	0.792	3	0.542
NOTOMASTUS HEMIPODUS	1	0.264	0	0.0
ONUPHIS EREMITA OCULATA	2	0.528	32	5.787
PARACNIDES LYRA	1	0.264	0	0.0
PARACNIDES FULGENS	1	0.264	0	0.0
POLYDORA TETRAERANCHIA	2	0.528	1	0.181
PRIONOSPION CRISTATA	15	3.958	31	5.606
RULLIERINERIS MEXICANA	7	1.847	7	1.266
SCOLELEPIS SQUAMATA	5	1.319	2	0.362

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

2/2/77

(CONTINUED)

SPECIES	NO. CF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>SCOLELEPIS TEXANA</u>	9	2.375	4	0.723
<u>SCOLCPLCS ARMIGER</u>	28	7.388	2	0.362
<u>SIGAMBRA TENTACULATA</u>	0	0.0	1	0.181
<u>SPIO PETTIBONEAE</u>	1	0.264	0	0.0
<u>SPIOPHANES BCMBYX</u>	11	2.902	26	4.702
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>ACANTHOHAUSTORIUS SP.</u>	16	4.222	2	0.362
<u>AMPELISCA VERRILLI</u>	2	0.528	0	0.0
<u>LITSTRIELLA SP.</u>	3	0.792	0	0.0
<u>MONCCULODES SP.</u>	1	0.264	0	0.0
<u>PRCTHAUSTORIUS SP.</u>	34	8.971	2	0.362
<u>PSEUDOHAUSTORIUS SP.</u>	0	0.0	1	0.181
<u>PSEUDOPLATYISCHNOPUS SP.</u>	88	23.219	35	6.329
<u>SYNCHELIDUM SP.</u>	2	0.528	0	0.0
ANOMURA				
<u>ALBUNEA PARETI</u>	0	0.0	4	0.723
ERACHYURA				
<u>CYALIFES CCELLATUS</u>	0	0.0	1	0.181
CUNACEA				
<u>CYCLAPSIS VARIANS</u>	0	0.0	1	0.181
OSTRACODA				
UNIDENTIFIED SP.	3	0.792	1	0.181
PENAIDEA				
<u>SICYONIA BREVIROSTRIS</u>	0	0.0	1	0.181
ECHINODERMATA				
ASTEROIDEA (STARFISHES)				
<u>ASTROPECTEN ARTICULATUS</u>	1	0.264	0	0.0
ECHINOIDEA (SAND DOLLARS; URCHINS)				
<u>MCIRA ATEOPS</u>	1	0.264	0	0.0
HOLCTHURCIDEA (SEA CUCUMBERS)				
<u>LEPTOSYNAPTA SP.</u>	0	0.0	1	0.181
CEPHALOCCHORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	6	1.583	1	0.181
TOTALS				
NO. SPECIES	379	53	553	44
NO. IND. PER M2		1516		2212
S-W INDEX - H' (LN)		3.0609		1.8770
EVENNESS - J		0.7710		0.4960

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
3/1/77

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<hr/>				
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	17	2.881	17	1.822
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	6	1.017	10	1.072
PHORONIDA (PHORONIDS)				
<u>PHORONIS ARCHITECTA</u>	1	0.169	0	0.0
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>ACTECCINA CANALICULATA</u>	1	0.169	0	0.0
<u>ANACIS FLORICANA</u>	1	0.169	0	0.0
<u>NATICA PUSILLA</u>	3	0.508	6	0.643
<u>CLIVA SAYANA</u>	1	0.169	0	0.0
<u>POLINICES DUPLICATUS</u>	4	0.678	1	0.107
<u>TURBENILLA CONRADI</u>	4	0.678	2	0.214
PELECYPODA (CLAMS)				
<u>LUCINA MULTILINEATA</u>	8	1.356	6	0.643
<u>PERIPLEMA MARGARITACEUM</u>	3	0.508	1	0.107
<u>STRIGILLA MIRABILIS</u>	0	0.0	3	0.322
<u>TELLINA AECUISTRIATA</u>	1	0.169	0	0.0
<u>TELLINA VERSICOLOR</u>	10	1.695	9	0.965
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	59	10.000	5	0.536
POLYCHAETA				
<u>AGLAPHAMUS VERRILLI</u>	2	0.339	1	0.107
<u>AMPHARETE ACUTIFRONS</u>	0	0.0	1	0.107
<u>APPOPTONOSPIO PYGMAEA</u>	0	0.0	1	0.107
<u>ARICIDEA CERRUTI</u>	2	0.339	5	0.536
<u>ARICIDEA FRAGILIS</u>	1	0.169	0	0.0
<u>ARICIDEA PHILBINEAE</u>	4	0.678	0	0.0
<u>ARICIDEA SLEETICA</u>	1	0.169	0	0.0
<u>ARICIDEA TAYLORI</u>	1	0.169	0	0.0
<u>ARMANDIA AGILIS</u>	4	0.678	10	1.072
<u>BRANIA CLAVATA</u>	0	0.0	5	0.536
<u>BRANIA WELFLEETENSIS</u>	0	0.0	2	0.214
<u>CAPITELLA CAPITATA</u>	0	0.0	1	0.107
<u>CERATONEREIS IRRITABILIS</u>	0	0.0	2	0.214
<u>CERATONEREIS MIRABILIS</u>	0	0.0	3	0.322
<u>CHONE SP.</u>	1	0.169	0	0.0
<u>ETECNE LACTEA</u>	1	0.169	0	0.0
<u>GLYCERA AMERICANA</u>	0	0.0	3	0.322
<u>GLYCERA DIBRANCHIATA</u>	3	0.508	1	0.107
<u>GONIAIA LITTOREA</u>	2	0.339	0	0.0
<u>GYPTIS VITTATA</u>	3	0.508	2	0.214
<u>HAPLOSCOLOPLOS FOLIOSUS</u>	2	0.339	0	0.0
<u>HAPLOSCOLOPLOS FRAGILIS</u>	5	0.847	0	0.0
<u>HAPLOSCOLOPLOS ROBUSTUS</u>	0	0.0	1	0.107
<u>LOIMIA VIRIDIS</u>	1	0.169	0	0.0
<u>LUMBRINERIS CRUZENSIS</u>	127	21.525	271	29.046
<u>LUMBRINERIS TETRAURA</u>	29	4.915	3	0.322
<u>MACROCLYMENE ZONALIS</u>	1	0.169	2	0.214
<u>MEDICASTUS CALIFORNIENSIS</u>	5	0.847	0	0.0
<u>MICROPHTHALMUS ABERRANS</u>	0	0.0	1	0.107
<u>MINUSPIO CIRRIFERA</u>	1	0.169	0	0.0
<u>NEPHTYS BUCERA</u>	0	0.0	2	0.214
<u>NEPHTYS PICTA</u>	25	4.237	28	3.001

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
3/1/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>NOTCHASTUS HEMIPODUS</u>	3	0.508	2	0.214
<u>GNUPHIS EREMITA OCULATA</u>	11	1.864	26	2.787
<u>CRBINIA RISERI</u>	0	0.0	1	0.107
<u>PARACNIDES LYRA</u>	4	0.678	1	0.107
<u>PARACNIS FULGENS</u>	1	0.169	4	0.429
<u>PHYLLODOCE ARENAE</u>	1	0.169	1	0.107
<u>POLYORA SOCIALIS</u>	0	0.0	1	0.107
<u>PRIONOSPIO CRISTATA</u>	29	4.915	146	15.648
<u>PSEUDEURYTHOE AMBIGUA</u>	0	0.0	1	0.107
<u>NULLITERINEREIS MEXICANA</u>	12	2.034	3	0.322
<u>SCOLELEPIS SQUAMATA</u>	5	0.847	6	0.643
<u>SCOLELEPIS TEXANA</u>	0	0.0	9	0.965
<u>SCOLOPLOS ARMIGER</u>	43	7.288	48	5.145
<u>SCOLOPLOS RUBRA</u>	2	0.339	0	0.0
<u>SIGAMBRA TENTACULATA</u>	0	0.0	3	0.322
<u>SPIO PETTIBONEAE</u>	0	0.0	4	0.429
<u>SPIOCHAETOPTERUS OCULATUS</u>	1	0.169	0	0.0
<u>SPIOPHANES BOMBYX</u>	57	9.661	112	12.004
 SIPLUNCULIDA (PEANUT WORMS)				
<u>ASPIDOSIPHON SP.</u>	0	0.0	1	0.107
 ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>ACANTHOHAUSTORIUS SP.</u>	0	0.0	7	0.750
<u>AMPELISCA VERRILLI</u>	3	0.508	3	0.322
<u>LISTRIELLA SP.</u>	2	0.339	4	0.429
<u>MONOCLODES SP.</u>	1	0.169	4	0.429
<u>PROTOHALSTORIUS SP.</u>	0	0.0	12	1.286
<u>PSEUDOHALSTORIUS SP.</u>	2	0.339	0	0.0
<u>PSELCOPLATYSCHNOPUS SP.</u>	42	7.119	104	11.147
<u>SYNCELIDIUM SP.</u>	1	0.169	0	0.0
<u>TIRCA BICSELLATUS</u>	0	0.0	1	0.107
ANCMURA				
<u>ALBINEA PARETII</u>	1	0.169	6	0.643
<u>EUCERAMUS PRAELONGUS</u>	1	0.169	0	0.0
<u>PAGURUS LONGICARPUS</u>	1	0.169	1	0.107
BRACHYLURA				
<u>OVALIPES OCELLATUS</u>	2	0.339	5	0.536
<u>PINNIPEDIA SAYANA</u>	0	0.0	1	0.107
CARIDEA				
<u>HIPPOCLYTE PLEURACANTHA</u>	1	0.169	0	0.0
CUMACEA				
<u>CYCLAPSIS SP.</u>	1	0.169	0	0.0
<u>CYCLAPSIS VARIANS</u>	1	0.169	7	0.750
OSTRACODA				
UNIDENTIFIED SP.	8	1.356	2	0.214
 ECHINODERMATA				
ASTEROCIDEA (STARFISHES)				
<u>ASTROPECTEN ARTICULATUS</u>	2	0.339	0	0.0
HOLOTHUROIDEA (SEA CUCUMBERS)				
<u>LEPTOSYNAPTA SP.</u>	9	1.525	0	0.0
OPHIUROCIDEA (BRITTLE STARS)				
<u>OPHICHRAGMUS WURDEMANI</u>	0	0.0	1	0.107
 CEPHALOCORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	3	0.508	1	0.107

TREASURE ISLAND MOTEL (STATIC 1) - CONTROL AND EXPERIMENTAL

3/1/77
(CONTINUED)

SPECIES	<u>NO. OF IND. (C.)</u>		<u>NO. OF INC. (E.)</u>	
	TOTAL	PERCENT	TOTAL	PERCENT
TOTALS	590		933	
NO. SPECIES		64		62
NO. IND. PER M2		2360		3732
S-M INDEX - H'(LN)		3.0592		2.6117
EVENNESS - J		0.7356		0.6328

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
4/1/77

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNICARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	2	0.304	0	0.0
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	11	1.672	17	2.163
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	27	4.103	0	0.0
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
NATICA PUSILLA	0	0.0	1	0.127
TEREBERA DISLOCATA	1	0.152	1	0.127
TURBOCILLA CONRADII	1	0.152	0	0.0
PELECYPODA (CLAMS)				
ANATIDA ANATINA	1	0.152	0	0.0
LUCINA MULTILINEATA	7	1.064	3	0.382
PERILICMA MARGARITACEUM	3	0.456	0	0.0
SOLEMYA SP.	0	0.0	5	0.636
STRIGILLA MIRABILIS	2	0.304	0	0.0
TELLINA VERSICOLOR	11	1.672	13	1.654
ANNELIDA (SEGMENTED WORMS)				
CLIGCHAEATA				
UNIDENTIFIED SP.	31	4.711	10	1.272
POLYCHAETA				
AGLAPHAMUS VERRILLI	1	0.152	0	0.0
APOPRIONCSPID PYGMAEA	1	0.152	2	0.254
ARICIDEA FAUVELI	3	0.456	5	0.636
ARMANDIA AGILIS	5	0.760	5	0.636
ARMANDIA MACULATA	2	0.304	1	0.127
ERANIA WELFLEETENSIS	5	0.760	0	0.0
CERATINEREIS MIRABILIS	0	0.0	2	0.254
CHONE SP.	1	0.152	2	0.254
CIRRATULIDAE UNIDENTIFIED SP.	0	0.0	1	0.127
DIOPATRA CUPREA	0	0.0	1	0.127
DISPID UNCINATA	20	3.040	4	0.509
ETEONE LACTEA	1	0.152	2	0.254
GLYCERA AMERICANA	6	0.912	3	0.382
GLYCERA DIDRANCHIATA	1	0.152	1	0.127
GONIACA LITTOREA	1	0.152	0	0.0
GYPTIS BREVIDALPA	5	0.760	0	0.0
HAPLISCLOPLOS FRAGILIS	0	0.0	1	0.127
LUMBRINERIS CRUZENSIS	32	4.863	186	23.664
LUMBRINERIS ERECTA	0	0.0	1	0.127
LUMBRINERIS TETRAURA	10	1.520	1	0.127
MAGELONA LONGICORNIS	1	0.152	3	0.382
MAGELONA SP.	3	0.456	1	0.127
MEDICMASTUS CALIFORNIENSIS	1	0.152	3	0.382
NEPHIYS BUCERA	0	0.0	0	0.0
NEPHIYS PICTA	75	11.398	37	4.707
NOTOMASTUS HEMIPODUS	0	0.0	2	0.254
ONUPHIS EREMITA OCULATA	0	0.0	23	2.926
ONUPHIS PALLICA	0	0.0	1	0.127
PARACNIDES LYRA	1	0.152	0	0.0
PARACNIS FULGENS	8	1.216	1	0.127
PARAFRICNCSPIO PINNATA	3	0.456	4	0.509
PHYLLCOCCE ARENAE	0	0.0	6	0.763
POLYCIRRUS EXIMIUS	0	0.0	1	0.127

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

4/1/77

(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>POLYDORA SOCIALIS</u>	1	0.152	1	0.127
<u>POLYDORA TETRABRANCHIA</u>	3	0.456	0	0.0
<u>PRIONOSPIC CRISTATA</u>	26	3.951	51	6.489
<u>PSEUDOLYTHOE AMBIGUA</u>	1	0.152	0	0.0
<u>RULLIERINEREIS MEXICANA</u>	6	0.912	2	0.254
<u>SCOLELEPIS TEXANA</u>	39	5.927	24	3.053
<u>SCOLCLOS ARMIGER</u>	24	3.647	25	3.181
<u>SCOLCLOS RUERA</u>	7	1.064	0	0.0
<u>SIGAMBRA BASSI</u>	4	0.608	1	0.127
<u>SIGAMBRA TENTACULATA</u>	0	0.0	2	0.254
<u>SPIC PETTIDONEAE</u>	0	0.0	1	0.127
<u>SPIC PHANES COMBYX</u>	102	15.502	316	40.204
SIPUNCULIDA (PEANUT WORMS)				
<u>GOLFINGIA TRICHOCEPHALA</u>	0	0.0	1	0.127
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>ACANTHCHAUSTORIUS SP.</u>	14	2.128	0	0.0
<u>AMPELISCA VERRILLI</u>	0	0.0	1	0.127
<u>ERICHTHONIUS SP.</u>	13	1.976	0	0.0
<u>MONOCULCOES SP.</u>	1	0.152	1	0.127
<u>PROTODAUSTORIUS SP.</u>	28	4.255	0	0.0
<u>PSEUDOPLATYSCHNOPUS SP.</u>	89	13.526	4	0.509
UNIDENTIFIED SP.	3	0.456	0	0.0
ANOMURA				
<u>ALBUNEA PARETII</u>	2	0.304	2	0.254
CARIDEA				
<u>HIPPILYTE PLEURACANTHA</u>	1	0.152	0	0.0
CUMACEA				
<u>CYCLAPSIS SP.</u>	1	0.152	0	0.0
<u>CYCLAPSIS VARIANS</u>	4	0.608	1	0.127
OSTRACODA				
UNIDENTIFIED SP.	1	0.152	1	0.127
TANAIDACEA				
UNIDENTIFIED SP.	1	0.152	0	0.0
ECHINODERMATA				
ECHINOIDEA (SAND DOLLARS; URCHINS)				
<u>MOIRA ATROPS</u>	1	0.152	0	0.0
CEPHALOCHOERDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	3	0.456	1	0.127
TOTALS	658		786	
NO. SPECIES	57		52	
NO. IND. PER M2	2632		3144	
S-M INDEX - H'(LN)	3.0944		2.1706	
EVENNESS - J	0.7654		0.5493	

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
5/2/77

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	0	0.0	1	0.242
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	15	2.333	16	3.865
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	8	1.244	0	0.0
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
NATICA PUSILLA	0	0.0	1	0.242
TURBANILLA CONRADI	2	0.311	0	0.0
PELECYPODA (CLAMS)				
LEPTON SP.	1	0.156	8	1.932
LUCINA MULTILINEATA	4	0.622	2	0.483
SOLEMYA VELUM	1	0.156	0	0.0
STRIGILLA MIRABILIS	0	0.0	1	0.242
TELLINA TEXANA	0	0.0	1	0.242
TELLINA VERSICOLOR	9	1.400	0	0.0
ANNELIDA (SEGMENTED WORMS)				
CLIGIOCHAETA				
UNIDENTIFIED SP.	29	4.510	7	1.691
POLYCHAETA				
AMPHARETE ACUTIFRONS	0	0.0	1	0.242
APOBRIONOSPION PYGMAEA	0	0.0	2	0.483
ARICIDEA FAUVELI	4	0.622	5	1.208
ARICIDEA FRAGILIS	5	0.778	4	0.966
ARICIDEA PHILINA	0	0.0	1	0.242
ARMANDIA AGILIS	1	0.156	0	0.0
BRANTIA WELFLEETENSIS	2	0.311	2	0.483
CAPITELLA CAPITATA	0	0.0	3	0.725
CERATOCEREIS MIRABILIS	2	0.311	5	1.208
CHOCNE SP.	2	0.311	1	0.242
DISPTIC UNCINATA	4	0.622	4	0.966
ETEONE LACTEA	0	0.0	2	0.483
GLYCERA AMERICANA	2	0.311	3	0.725
GYPTIS BREVIPALPA	3	0.467	0	0.0
HAPLOSCLOPUS FOLIOSUS	13	2.022	7	1.691
HAPLOSCLOPUS FRAGILIS	4	0.622	0	0.0
LOIPIA MEDUSA	1	0.156	0	0.0
LUMBRINERIS CRUZENSIS	81	12.597	62	14.976
LUMBRINERIS TETRAURA	15	2.333	3	0.725
MAGELCNA LONGICORNIS	1	0.156	2	0.483
MAGELCNA SP.	5	0.778	3	0.725
MEDICMASTUS CALIFORNIENSIS	3	0.467	2	0.483
NEPHTYS BUCERA	1	0.156	1	0.242
NEPHTYS PICTA	90	13.997	58	14.010
NOTOMASTUS HEMIPODUS	1	0.156	2	0.483
ONUPHIS EREMITA OCULATA	0	0.0	5	1.208
OPHELIA SP.	2	0.311	0	0.0
PARACNIDES LYRA	5	0.778	1	0.242
PARACNIS FULGENS	1	0.156	0	0.0
PARAPRIONOSPION PINNATA	3	0.467	50	12.077
PHYLLODOCCE ARENAE	8	1.244	9	2.174
PODARKE OBSCURA	0	0.0	1	0.242
POECILOCHAETUS JOHNSONI	0	0.0	1	0.242
PRIONOSPION CRISTATA	14	2.177	10	2.415

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

5/2/77

(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>RULLIERINEREIS MEXICANA</u>	4	0.622	2	0.483
<u>SCOLELEPIS TEXANA</u>	2	0.311	1	0.242
<u>SCOLELOPS ARMIGER</u>	0	0.0	3	0.725
<u>SCOLELOPS RUBRA</u>	0	0.0	14	3.382
<u>SIGAMERA BASSI</u>	1	0.156	0	0.0
<u>SIGAMERA TENTACULATA</u>	1	0.156	0	0.0
<u>SPIO PETTIBONEAE</u>	11	1.711	0	0.0
<u>SPIOPTANES BOMBYX</u>	157	24.417	89	21.458
<u>STHERELAIS BOA</u>	0	0.0	1	0.242
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>AMPELISCA ABDITA</u>	0	0.0	1	0.242
<u>AMPELISCA VERRILLI</u>	9	1.400	0	0.0
<u>LITRIELLA SP.</u>	3	0.467	1	0.242
<u>MICROPROTOPUS SP.</u>	0	0.0	1	0.242
<u>PROTIFAUSTORIUS SP.</u>	0	0.0	2	0.483
<u>PSEUDOAUSTORIUS SP.</u>	1	0.156	0	0.0
<u>PSEUDOPLATYISCHNOPUS SP.</u>	92	14.308	0	0.0
<u>SYNCELIDIUM SP.</u>	4	0.622	2	0.483
BRACHYURA				
<u>MEIGICRHAPIS CALCARATA</u>	0	0.0	1	0.242
<u>PINNIXIA LUNZI</u>	1	0.156	0	0.0
<u>PINNIXIA SAYANA</u>	1	0.156	0	0.0
CARIDEA				
<u>PROCESSA HEMPHILLI</u>	1	0.156	0	0.0
CLMACEA				
<u>CYCLAPSIS SP.</u>	1	0.156	1	0.242
<u>CYCLAPSIS VARIANS</u>	4	0.622	1	0.242
OSTRACODA				
<u>LAPLOCYTHERIDEA SEPTIPUNCTATA</u>	3	0.467	0	0.0
<u>UNIDENTIFIED SP.</u>	1	0.156	1	0.242
ECHINODERMATA				
ASTEROIDEA (STARFISHES)				
<u>ASTROPECTEN ARTICULATUS</u>	1	0.156	2	0.483
OPHIURIDEA (BRITTLE STARS)				
<u>UNIDENTIFIED SP.</u>	0	0.0	1	0.242
HEMICHORCATA				
ENTEROPNEUSTA (ACORN WORMS)				
<u>UNIDENTIFIED SP.</u>	1	0.156	0	0.0
CEPHALOCHORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	2	0.311	3	0.725
TOTALS				
NO. SPECIES	643	55	414	54
NO. IND. PER M2		2572		1656
S-W INDEX - H'(LN)		2.7186		2.8260
EVENNESS - J		0.6784		0.7085

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
6/1/77

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	15	3.846	26	3.194
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	4	0.810	0	0.0
PHORONIDA (PHORONIDS)				
<u>PHORONIS ARCHITECTA</u>	0	0.0	2	0.246
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>CYLIPTNELLA BIDENTATA</u>	2	0.405	1	0.123
<u>DIASITMA VARIUM</u>	0	0.0	1	0.123
PELECYPOCA (CLAMS)				
<u>ANADARA FLORIDANA</u>	0	0.0	1	0.123
<u>CUMINGIA TELLINOIDES</u>	0	0.0	4	0.491
<u>LEPTCA SP.</u>	0	0.0	57	7.002
<u>LUCINA MULTILINEATA</u>	16	3.239	33	4.054
<u>MACTRA SP.</u>	0	0.0	1	0.123
<u>PITAR SIMPSONI</u>	4	0.810	0	0.0
<u>STRIGILLA MIRABILIS</u>	1	0.202	0	0.0
<u>TELLINA TEXANA</u>	0	0.0	2	0.246
<u>TELLINA VERSICOLOR</u>	17	3.441	55	7.248
VENERIDAE UNIDENTIFIED SP.	0	0.0	3	0.369
ANNELIDA (SEGMENTED WORMS)				
CLIGCHAETA				
UNIDENTIFIED SP.	23	4.656	24	2.948
PCLYCHAETA				
<u>AMPHARETE ACUTIFRONS</u>	0	0.0	1	0.123
<u>APOPRIONOSPLO PYGMAEA</u>	0	0.0	3	0.369
<u>ARICIDEA FAUVELI</u>	4	0.810	3	0.369
<u>ARICIDEA FRAGILIS</u>	1	0.202	2	0.246
<u>ARMANDIA MACULATA</u>	0	0.0	3	0.369
<u>BRANIA WELFLEETENSIS</u>	1	0.202	0	0.0
<u>CAPITELLA CAPITATA</u>	0	0.0	1	0.123
<u>CERATONEREIS IRRITABILIS</u>	0	0.0	1	0.123
<u>CERATONEREIS MIRABILIS</u>	0	0.0	2	0.246
<u>CHONE SP.</u>	9	1.822	4	0.491
<u>DIOPATRA CUPREA</u>	0	0.0	11	1.351
<u>DISPIO UNCINATA</u>	0	0.0	4	0.491
<u>ETONE LACTEA</u>	4	0.810	5	0.614
<u>GLYCERA AMERICANA</u>	12	2.429	14	1.720
<u>GLYCERA DIBRANCHIATA</u>	0	0.0	1	0.123
<u>GLYCINDE SOLITARIA</u>	0	0.0	3	0.369
<u>GONIADA LITTORAE</u>	3	0.607	0	0.0
<u>GYPTIS VITATA</u>	0	0.0	1	0.123
<u>HAPLOSCOLOPLOS FOLIOSUS</u>	7	1.417	11	1.351
<u>HAPLOSCOLOPLOS FRAGILIS</u>	0	0.0	1	0.123
<u>HARMCTHOE LUNULATA</u>	1	0.202	0	0.0
<u>LUMBRINERIS CRUZENSIS</u>	25	5.870	51	6.265
<u>LUMBRINERIS TETRAURA</u>	5	1.822	6	0.737
<u>MAGELCNA SP.</u>	4	0.810	0	0.0
<u>MEDICMASTUS CALIFORNIENSIS</u>	0	0.0	6	0.737
<u>MINUSPIC CIRRIFERA</u>	0	0.0	3	0.369
<u>MYRICHELE SP.</u>	0	0.0	1	0.123
<u>NEPHTYS BUCERA</u>	10	2.024	0	0.0
<u>NEPHTYS PICTA</u>	99	20.040	150	18.428
<u>NOTCMASTUS HEMIPODUS</u>	2	0.405	0	0.0
<u>CNUPHIS EREMITA OCULATA</u>	27	5.466	26	3.194

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
6/1/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>ONUPHIS PALLIDA</u>	1	0.202	0	0.0
<u>PARAKAITES SPECIOSA</u>	1	0.202	0	0.0
<u>PARAKIDES LYRA</u>	6	1.215	6	0.737
<u>PARAPRIONOSPION PINNATA</u>	0	0.0	27	3.317
<u>PHYLLODOCE ARENAE</u>	2	0.405	5	0.614
<u>PRIONOSPION CRISTATA</u>	21	4.251	84	10.319
<u>RULLIERINEREIS MEXICANA</u>	5	1.012	1	0.123
<u>SCOLELEPIS TEXANA</u>	5	1.012	7	0.860
<u>SIGAMBRA BASSI</u>	1	0.202	0	0.0
<u>SIGAMBRA TENTACULATA</u>	0	0.0	5	1.106
<u>SPIO PETTIBONEAE</u>	8	1.619	0	0.0
<u>SPIOPHANES DOMBOYX</u>	18	3.644	50	6.143
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>ACANTHOHAUSTORIUS SP.</u>	20	4.049	0	0.0
<u>AMPELISCA ABDITA</u>	0	0.0	3	0.369
<u>AMPELISCA VADORUM</u>	0	0.0	2	0.246
<u>AMPELISCA VERRILLI</u>	14	2.834	2	0.369
<u>ARGISSA SP.</u>	0	0.0	2	0.246
<u>LEPICACTYLUS SP.</u>	0	0.0	1	0.123
<u>LISTRIELLA SP.</u>	3	0.607	0	0.0
<u>LYSIANOPSIS SP.</u>	1	0.202	1	0.123
<u>PROTOHAUSTORIUS SP.</u>	10	2.024	1	0.123
<u>PSEUDHAUSTORIUS SP.</u>	3	0.607	0	0.0
<u>PSEUDOPLATYISCHNOPLIS SP.</u>	16	3.239	22	2.703
<u>SYNCELIDIUM SP.</u>	9	1.822	4	0.491
ANOMURA				
<u>ALBUNEA PARETII</u>	0	0.0	1	0.123
BRACHYURA				
<u>QUALIFES OCELLATUS</u>	1	0.202	1	0.123
<u>PINNIXIA CYLINDRICA</u>	0	0.0	1	0.123
<u>PINNIXIA RETINENS</u>	2	0.405	1	0.123
<u>PINNIXIA SAYANA</u>	1	0.202	0	0.0
CARIDEA				
<u>PROCESSA HEMPHILLI</u>	2	0.405	5	0.614
CUMACEA				
<u>CYCLAPSIS SP.</u>	3	0.607	1	0.123
<u>CYCLAPSIS VARIANS</u>	9	1.822	10	1.229
<u>GYROSTYLIS SMITHI</u>	0	0.0	14	1.720
LEPTOSTRACA				
<u>NEBALIA SP.</u>	1	0.202	1	0.123
MYSIDACEA				
<u>UNIDENTIFIED SP.</u>	1	0.202	0	0.0
OSTRACOCA				
<u>SARSIELLA CHILDI</u>	0	0.0	1	0.123
PENAIDEA				
<u>SICYCNIA BREVIROSTRIS</u>	0	0.0	1	0.123
ECHINODERMATA				
ASTEROIDEA (STARFISHES)				
<u>ASTROPECTEN ARTICULATUS</u>	1	0.202	0	0.0
ECHINOIDEA (SAND DOLLARS; URCHINS)				
<u>LYTECHINUS VARIEGATUS</u>	1	0.202	0	0.0
<u>MELLITA QUINQUE SPERCRATA</u>	7	1.417	8	0.983
OPHIUROIDEA (BRITTLE STARS)				
<u>UNIDENTIFIED SP.</u>	5	1.012	12	1.474
CEPHALOCORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	8	1.619	1	0.123

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

6/1/77
(CONTINUED)

SPECIES	<u>NO. OF IND. (C.)</u>		<u>NO. CF IND. (E.)</u>	
	TOTAL	PERCENT	TOTAL	PERCENT
<hr/>				
TOTALS	494		814	
NO. SPECIES		55		69
NO. IND. PER M2		1976		3256
S-H INDEX - H' (LN)		3.3330		3.1985
EVENNESS - J		0.8317		0.7554

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
7/5/77

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNICARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	0	0.0	1	0.204
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	3	0.368	0	0.0
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	25	3.064	15	3.055
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	5	0.613	0	0.0
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>ACTEOCINA CANDEI</u>	28	3.431	0	0.0
<u>CYLICNELLA BIDENTATA</u>	0	0.0	1	0.204
<u>NATICA PUSILLA</u>	0	0.0	1	0.204
<u>POLINICES DUPLICATUS</u>	0	0.0	1	0.204
PELECYPODA (CLAMS)				
<u>LAEVI CARDIUM MORTONI</u>	1	0.123	0	0.0
<u>LEPTON SP.</u>	10	1.225	0	0.0
<u>LUCINA MULTILINEATA</u>	73	8.946	25	5.092
<u>MACRCCALLISTA MACULATA</u>	2	0.245	0	0.0
<u>PERIPLOMA MARGARITACEUM</u>	3	0.368	0	0.0
<u>TELLINA AEQUISTRATA</u>	3	0.368	2	0.407
<u>TELLINA TEXANA</u>	14	1.716	14	2.851
<u>TELLINA VERSICOLOR</u>	81	9.926	58	11.813
VENERIDAE UNIDENTIFIED SP.	2	0.245	0	0.0
ANNELIDA (SEGMENTED WORMS)				
CLIGGCHAETA				
UNIDENTIFIED SP.	14	1.716	1	0.204
POLYCHAETA				
<u>APOPRIONOSPION PYGMAEA</u>	2	0.245	2	0.407
<u>ARICIDEA CERRUTI</u>	0	0.0	1	0.204
<u>ARICIDEA FAUVELI</u>	3	0.368	6	1.222
<u>ARICIDEA FRAGILIS</u>	4	0.490	2	0.407
<u>ARICIDEA SUECICA</u>	0	0.0	1	0.204
<u>ARMANDIA AGILIS</u>	0	0.0	2	0.407
<u>ARMANDIA MACULATA</u>	0	0.0	1	0.204
<u>CERATONEREIS IRRITABILIS</u>	0	0.0	1	0.204
<u>CHONE SP.</u>	14	1.716	3	0.611
<u>CIRRROPHORUS LYRIFORMIS</u>	0	0.0	1	0.204
<u>DISPIDIO UNCINATA</u>	0	0.0	3	0.611
<u>ETEOBE LACTEA</u>	5	0.613	1	0.204
<u>GLYCERA AMERICANA</u>	41	5.025	16	3.259
<u>GLYCERA DIBRANCHIATA</u>	0	0.0	1	0.204
<u>GONIADA LITTOREA</u>	8	0.980	11	2.240
<u>GRUBEULEPIS MEXICANA</u>	1	0.123	0	0.0
<u>GYPTIS VITIATA</u>	1	0.123	0	0.0
<u>HAPLISCOCLOPLOS FOLIOSUS</u>	6	0.735	1	0.204
<u>HAPLISCOCLOPLOS FRAGILIS</u>	1	0.123	0	0.0
<u>LUMBRINERIS CRUZENSIS</u>	154	18.873	90	18.330
<u>LUMBRINERIS TETRAURA</u>	24	2.941	1	0.204
<u>MEDICMASTUS CALIFORNIENSIS</u>	3	0.368	1	0.204
<u>MICROPHALMUS SP.</u>	2	0.245	0	0.0
<u>NEPHIYS BUCERA</u>	2	0.245	0	0.0
<u>NEPHIYS PICTA</u>	112	13.725	125	26.273

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

7/5/77

(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>NOTOMASTUS HEMIPODUS</u>	2	0.245	1	0.204
<u>ONUPHIS EREMITA OCULATA</u>	22	2.696	10	2.037
<u>OWENIA FUSIFORMIS</u>	9	1.103	0	0.0
<u>PARANAITES SPECIOSA</u>	1	0.123	0	0.0
<u>PARACNIDES LYRA</u>	10	1.225	26	5.295
<u>PARACNIS FULGENS</u>	3	0.368	0	0.0
<u>PARAPRIONOSPIO PINNATA</u>	2	0.245	8	1.629
<u>PHYLLODOCE ARENAE</u>	2	0.245	2	0.407
<u>PRIONOSPIO CRISTATA</u>	13	1.593	5	1.018
<u>RULLIERINEREIS MEXICANA</u>	1	0.123	0	0.0
<u>SCOLELEPIS TEXANA</u>	1	0.123	0	0.0
<u>SCOLOPLOS RUBRA</u>	2	0.245	0	0.0
<u>SIGALICA ARENICOLA</u>	1	0.123	0	0.0
<u>SPIGIFRANES BCMBYX</u>	1	0.123	13	2.648
SIPUNCULIDA (PEANUT WORMS)				
UNIDENTIFIED SP.	1	0.123	0	0.0
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>ACANTHOHAUSTORIUS SP.</u>	1	0.123	0	0.0
<u>AMPELISCA VADORUM</u>	1	0.123	0	0.0
<u>AMPELISCA VERRILLI</u>	9	1.103	7	1.426
<u>ARGISSA SP.</u>	1	0.123	0	0.0
<u>LISTRIELLA SP.</u>	4	0.490	2	0.407
<u>MICROPOTOPUS SP.</u>	3	0.368	0	0.0
<u>MONOCULODES SP.</u>	1	0.123	0	0.0
<u>PSEUDOPLATYISCHNOPUS SP.</u>	22	2.696	1	0.204
<u>SYNGELIDIUM SP.</u>	21	2.574	0	0.0
UNIDENTIFIED SP.	1	0.123	0	0.0
ANCMURA				
<u>ALBINEA PARETII</u>	0	0.0	1	0.204
BRACHYLARA				
<u>PINNIXIA CHAETOPTERANA</u>	1	0.123	0	0.0
<u>PINNIXIA RETINENS</u>	3	0.368	0	0.0
CARIDEA				
<u>OGYRIDES ALPHAEROSTRIS</u>	0	0.0	1	0.204
<u>SYNALPHEUS SP.</u>	0	0.0	1	0.204
CUMACEA				
<u>CYCLAPSID SP.</u>	2	0.245	0	0.0
<u>CYCLAPSID VARIANS</u>	15	1.838	4	0.815
<u>OXYURISTYLIS SMITHI</u>	0	0.0	2	0.407
PENAEIDA				
<u>PENAEUS DUORARUM</u>	1	0.123	2	0.407
ECHINODERMATA				
ASTEROIDEA (STARFISHES)				
<u>ASTROPECTEN ARTICULATUS</u>	0	0.0	1	0.204
ECHINOIDEA (SAND DOLLARS; URCHINS)				
<u>MELLITA GUINQUESPERFORATA</u>	2	0.245	0	0.0
HOLTHURFIDEA (SEA CUCUMBERS)				
<u>LEPTOSYNAPTA SP.</u>	0	0.0	10	2.037
OPHIURIDEA (BRITTLE STARS)				
UNIDENTIFIED SP.	0	0.0	1	0.204
HEMICHORCATA				
ENTEROPNEUSTA (ACORN WORMS)				
UNIDENTIFIED SP.	2	0.245	0	0.0
CEPHALOCHORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	8	0.980	0	0.0

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

7/5/77

(CONTINUED)

SPECIES	NO. CF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
TOTALS	816		491	
NO. SPECIES		64		49
NO. IND. PER M2		3264		1964
S-H INDEX - H' (LN)		3.0767		2.6678
EVENNESS - J		0.7398		0.6855

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
8/2/77

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNICARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	0	0.0	1	0.137
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	11	0.851	3	0.411
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	33	2.554	16	2.192
BRACHIOPODA (LAMP SHELLS)				
<u>GLOTTIDIA PYRAMIDATA</u>	3	0.232	0	0.0
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>ACTECCINA CANDEI</u>	9	0.697	8	1.096
<u>CYLICINELLA BIDENTATA</u>	0	0.0	73	10.000
<u>DIASTOMA VARIUM</u>	24	1.858	0	0.0
<u>NATICA PUSILLA</u>	10	0.774	2	0.274
<u>POLINICES DUPLICATUS</u>	1	0.077	0	0.0
<u>TEREBA DISLOCATA</u>	1	0.077	0	0.0
<u>TURBINILLA CONRADI</u>	3	0.232	1	0.137
PELECYPODA (CLAMS)				
<u>ANADARA FLORICANA</u>	0	0.0	3	0.411
<u>ERVILIA CONCENTRICA</u>	26	2.012	0	0.0
<u>LUCINA MULTILINEATA</u>	31	2.399	15	2.055
<u>NUCULANA ACUTA</u>	0	0.0	6	0.822
<u>TELLINA AEGUISIRIATA</u>	6	0.464	5	0.685
<u>TELLINA TAMPAENSIS</u>	1	0.077	9	1.233
<u>TELLINA TEXANA</u>	0	0.0	6	0.822
<u>TELLINA VERTICOLOR</u>	180	13.932	102	13.973
<u>TRACHYCARDIUM MURICATUM</u>	4	0.310	1	0.137
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	16	1.393	0	0.0
PCLYCHAETA				
<u>APOPRIONOSPIO PYGMAEA</u>	3	0.232	1	0.137
<u>ARICIDEA CERRUTI</u>	1	0.077	0	0.0
<u>ARICIDEA FRAGILIS</u>	3	0.232	0	0.0
<u>ARMANDIA MACULATA</u>	12	0.929	3	0.411
<u>BRANCHIOASYCHIS AMERICANA</u>	0	0.0	5	0.685
<u>CERATONEREIS IRRITABILIS</u>	2	0.155	18	2.466
<u>CHONE SP.</u>	31	2.399	0	0.0
<u>CISTENIDES GOULDII</u>	0	0.0	1	0.137
<u>DIOPATRA CLPREA</u>	0	0.0	33	4.521
<u>DORVILLEA SOCIABILIS</u>	3	0.232	0	0.0
<u>ENDOLOBRANCHUS SANGUINEUS</u>	1	0.077	0	0.0
<u>ETHEONE LACTEA</u>	9	0.697	0	0.0
<u>GLYCERA AMERICANA</u>	35	2.709	0	0.0
<u>GLYCERA DIBRANCHIATA</u>	7	0.542	4	0.548
<u>GLYCINDE SOLITARIA</u>	0	0.0	4	0.548
<u>GONIATA LITTOREA</u>	10	0.774	1	0.137
<u>GYPTIS BREVIPALPA</u>	4	0.310	0	0.0
<u>HAPLOSCOLOPLOS FRAGILIS</u>	1	0.077	0	0.0
<u>HARMOTHOE IMBRICATA</u>	0	0.0	1	0.137
<u>LOIMIA MEDUSA</u>	3	0.232	3	0.411
<u>LUMBRINERIS CRUZENSIS</u>	373	28.870	8	1.096
<u>LUMBRINERIS TETRAURA</u>	21	1.625	1	0.137

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

E/2/77

(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. CF INC. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
MAGELCNA LONGICORNIS	0	0.0	2	0.274
MEDICMASTUS CALIFORNIENSIS	0	0.0	10	1.370
MESOCHAETOPTERUS SAGITTARIUS	10	0.774	24	3.288
MINUSPIO CIRRIFERA	0	0.0	3	0.411
NEANTIES SUCCINEA	0	0.0	14	1.918
NEPHIYS BUCERA	4	0.310	0	0.0
NEPHIYS PICTA	65	5.031	7	0.959
NEREIS SP.	0	0.0	1	0.137
NOTOMASTUS HEMIPODUS	4	0.310	3	0.411
ONUPHIS EREMITA OCULATA	16	1.238	4	0.548
OWENIA FUSIFORMIS	1	0.077	1	0.137
PARACNIDES LYRA	15	1.161	2	0.274
PARACNIS FULGENS	4	0.310	0	0.0
PARAPRIONOSPIO PINNATA	0	0.0	11	1.507
PHYLLODOCE ARENAE	9	0.697	4	0.548
POLYDORA SOCIALIS	0	0.0	2	0.274
POLYDORA TETRABRANCHIA	1	0.077	0	0.0
PRIONOSPIO CRISTATA	96	7.430	75	10.274
PSEUDEURYTHOE AMBIGUA	1	0.077	0	0.0
RULLIERINEREIS MEXICANA	2	0.155	1	0.137
SIGAMBRA BASSI	1	0.077	0	0.0
SIGAMBRA TENTACULATA	2	0.155	109	14.932
SPIO PETTIBONEAE	6	0.464	0	0.0
SPIOPHANES BOMBYX	6	0.464	0	0.0
STENELAIS BOA	0	0.0	3	0.411
STREPTOSYLLIS ARENAE	1	0.077	0	0.0
SIPUNCULICA (PEANUT WORMS)				
UNIDENTIFIED SP.	1	0.077	1	0.137
ECHIURIDA (ECHIURIDS)				
UNIDENTIFIED SP.	0	0.0	3	0.411
ARTHOPODA (CRUSTACEANS)				
AMPHIPODA				
ACANTHOHAUSTORIUS SP.	1	0.077	0	0.0
AMPELISCA VERRILLI	46	3.560	9	1.233
ERICTHONIUS SP.	1	0.077	2	0.274
LITRIELLA SP.	0	0.0	2	0.274
PSEUDOPLATYSCHNOPUS SP.	20	1.548	1	0.137
SYNCFELIDIUM SP.	20	1.548	8	1.096
ANOMURA				
ALBUNEA PARETI	2	0.155	0	0.0
BRACHYURA				
CSACHILA TUBEROSA	2	0.155	0	0.0
FANCFEUS HERBERTII	0	0.0	8	1.096
PINNIXIA RETINENS	2	0.155	0	0.0
PINNIXIA SP.	0	0.0	2	0.274
PINNOTHERES OSTREUM	1	0.077	0	0.0
PORTUNUS SAYI	0	0.0	6	0.822
CALLINANASSIDAE				
CALLINANASSA JAMAICENSE	1	0.077	1	0.137
CARIDEA				
LATREUTES PARVULUS	0	0.0	3	0.411
PROCESSA FEMPHILLI	6	0.464	4	0.548
CUMACEA				
CYCLAESIS SP.	6	0.464	1	0.137
CYCLAESIS VARIANS	8	0.619	9	1.233
CYUFGSTYLIS SMITHI	9	0.697	1	0.137
ISCOPDA				
APANTHURA MAGNIFICA	1	0.077	0	0.0

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

8/2/77

(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
LEPTOSTRACA				
<u>NEBALIA SP.</u>	8	0.619	2	0.274
MYSIDACEA				
<u>MYSIDOIPSIS BIGELOWI</u>	3	0.232	0	0.0
OSTRACCA				
UNIDENTIFIED SP.	4	0.310	7	0.959
PENAEIDAE				
<u>ACETES AMERICANUS</u>	2	0.155	0	0.0
<u>SICYONIA SP.</u>	1	0.077	1	0.137
<u>TRACHYPENAEUS CONSTRICTUS</u>	0	0.0	11	1.507
ECHINODERMATA				
ECHINIDEA (SAND DOLLARS; URCHINS)				
<u>LYTECHINUS VARIEGATUS</u>	2	0.155	0	0.0
<u>MOIRA ATROPIS</u>	2	0.155	34	4.658
HOLOTHUROIDEA (SEA CUCUMBERS)				
<u>LEPTOSYNAPTE SP.</u>	4	0.310	2	0.274
OPHIURIDEA (BRITTLE STARS)				
<u>HEMIPHOLIS ELCNGATA</u>	0	0.0	1	0.137
<u>MICROPHOLIS GRACILLIMA</u>	2	0.155	0	0.0
<u>OPHIOPHRAGMUS URDEMANI</u>	1	0.077	0	0.0
HEMICHORCATA				
ENTEROPNEUSTA (ACORN WORMS)				
UNIDENTIFIED SP.	1	0.077	1	0.137
CEPHALOCORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	10	0.774	0	0.0
VERTEBRATA				
PISCES (FISHES)				
Gobiidae, UNIDENTIFIED SP.	1	0.077	0	0.0
TOTALS	1292		730	
NO. SPECIES	80		70	
NO. IND. PER M2	5168		2520	
S-W INDEX - H'(LN)	3.0096		3.2331	
EVENNESS - J	0.6868		0.7610	

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
9/1/77

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNICARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	1	0.112	2	1.818
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	1	0.112	0	0.0
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	26	2.912	5	4.545
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	5	0.560	0	0.0
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
ACTEOCINA CANDEI	4	0.448	0	0.0
ANACHIS FLORIDANA	3	0.336	0	0.0
CYLICHELLA BIDENTATA	3	0.336	0	0.0
DIATOMA VARIUM	116	12.990	0	0.0
NASSARIUS ACUTUS	0	0.0	9	8.182
NATICA PUSILLA	4	0.448	2	1.818
TEREBRA DISLOCATA	4	0.448	2	1.818
TURBELLILLA CONRADI	1	0.112	0	0.0
PELECYPODA (CLAMS)				
ANADARA FLORIDANA	0	0.0	1	0.909
ERVILIA CONCENTRICA	28	3.135	0	0.0
LUCINA MULTILINEATA	9	1.008	0	0.0
NUCULANA ACUTA	0	0.0	1	0.909
PERIPLOMA MARGARITACEUM	15	1.680	0	0.0
TELLINA AEQUISTRATA	4	0.448	0	0.0
TELLINA TEXANA	6	0.672	7	6.364
TELLINA VERSICOLOR	138	15.454	13	11.818
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	18	2.016	1	0.909
POLYCHAETA				
AGLAPFAMUS VERRILLI	1	0.112	0	0.0
APOPRIONOSPION PYGMAEA	2	0.224	1	0.909
ARICIDEA FAUVELI	4	0.448	0	0.0
ARICIDEA FRAGILIS	2	0.224	0	0.0
ARICIDEA SUECICA	1	0.112	0	0.0
ARMANTIA AGILIS	1	0.112	0	0.0
BRANTIA WELFLEETENSIS	3	0.336	0	0.0
CAPITELLA CAPITATA	0	0.0	1	0.909
CAULLERIELLA SP.	1	0.112	0	0.0
CERATONEREIS IRRITABILIS	0	0.0	4	3.636
CHONE SP.	13	1.456	0	0.0
DIOPATRA CUPREA	0	0.0	3	2.727
DRIESCHIA PELLUCIDA	0	0.0	1	0.909
ETEONE LACTEA	3	0.336	0	0.0
GLYCERA AMERICANA	3	0.336	0	0.0
GLYCERA DIBRANCHIATA	10	1.120	2	1.818
GLYCIDIN SOLITARIA	0	0.0	1	0.909
GONIADA LITTORALIS	7	0.784	0	0.0
HAPLOSCILLICPLUS FOLIOSUS	2	0.224	0	0.0
LCIMIA VIRIDIS	1	0.112	0	0.0
LUMBRINERIS CRUZENSIS	252	28.219	1	0.909
LUMBRINERIS TETRAURA	8	0.896	0	0.0

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

9/1/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>MEDICMASTUS CALIFORNIENSIS</u>	1	0.112	0	0.0
<u>MEGASOCHAETOPTERUS SAGITTARIUS</u>	1	0.112	0	0.0
<u>NEANTHES ACUMINATA</u>	1	0.112	0	0.0
<u>NEANTHES SUCCINEA</u>	0	0.0	1	0.909
<u>NEPHYS PICTA</u>	14	1.568	1	0.909
<u>NOTOMASTUS HEMIPODUS</u>	5	0.560	1	0.909
<u>ONUPHIS EREMITA OCULATA</u>	22	2.464	1	0.909
<u>OWENIA FLUSIFORMIS</u>	1	0.112	0	0.0
<u>PARACNIDES LYRA</u>	25	2.800	0	0.0
<u>PARAFRICASPIO PINNATA</u>	0	0.0	5	4.545
<u>PHYLLODOCCE ARENAE</u>	6	0.672	0	0.0
<u>FRICACSPIC CRISTATA</u>	2	0.224	0	0.0
<u>PSEUDEURYTHOE AMBIGUA</u>	1	0.112	0	0.0
<u>RULLIERIAEFTS MEXICANA</u>	10	1.120	2	1.818
<u>SCCLELEFIS TEXANA</u>	3	0.336	0	0.0
<u>SIGAMEFA BASSI</u>	1	0.112	0	0.0
<u>SIGAMBRA TENTACULATA</u>	0	0.0	1	0.909
<u>SPIDOPANES BOMBYX</u>	1	0.112	0	0.0

SIPUNCULIDA (PEANUT WORMS)

GOLFINGIA TRICHOCEPHALA

1 0.112 0 0.0

ARTHROPODA (CRUSTACEANS)

AMPHIPODA

ACANTHOHAUSTORIUS SP.

3 0.336 0 0.0

AMPELISCA VERRILLI

6 0.672 0 0.0

LEPTOACTYLUS SP.

2 0.224 0 0.0

LISTRIELLA SP.

1 0.112 0 0.0

PSEUDOPLATYISCHNOPUS SP.

28 3.135 0 0.0

SYNGELIDIUM SP.

13 1.456 0 0.0

ANCMURA

ALBUNEA PARETI

2 0.224 0 0.0

PAGURUS LONGICARPUS

5 0.560 0 0.0

BRACHYURA

PINIXIA SAYANA

0 0.0 1 0.909

CUMACEA

CYCLAPSIS SP.

2 0.224 0 0.0

CYCLAPSIS VARIANS

14 1.568 0 0.0

ISOPODA

EDOTEA MCINTOSH

1 0.112 0 0.0

MYSIDACEA

BOWMANIELLA SP.

0 0.0 2 1.818

MYSIDOPSIS BIGELOWI

0 0.0 2 1.818

UNIDENTIFIED SP.

1 0.112 0 0.0

OSTRACODA

UNIDENTIFIED SP.

1 0.112 0 0.0

PENAEIDEA

ACETES AMERICANUS

0 0.0 2 1.818

ECHINODERMATA

ECHINOIDEA (SAND DOLLARS; URCHINS)

MOIRA ATECPS

1 0.112 0 0.0

MELLITA QUINQUESPERFORATA

6 0.672 0 0.0

HOLOTHURCIDEA (SEA CUCUMBERS)

LEPTOSYNAPTA SP.

0 0.0 1 0.909

OPHIOUROIDEA (BRITTLE STARS)

HEMIPHOLIS ELONGATA

0 0.0 28 25.455

MICROPHOLIS GRACILLIMA

3 0.336 0 0.0

HEMICHORDATA

ENTEROPNEUSTA (ACRON WORMS)

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
9/1/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
UNIDENTIFIED SP.	1	0.112	5	4.545
CEPHALOCCHORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	6	0.672	0	0.0
VERTEBRATA				
PISCES (FISHES)				
<u>SYMPHYRUS SP.</u>	2	0.224	0	0.0
TOTALS	893		110	
NO. SPECIES		70		32
NO. IND. PER M2		3572		440
SIM INDEX - H' (LN)		2.8562		2.8449
EVENNESS - J		0.6723		0.8209

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
10/3/77

SPECIES	NO. OF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNICARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	2	0.379	2	0.504
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	2	0.379	4	1.008
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	17	3.220	13	3.275
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	4	0.758	1	0.252
PHORONIDA (PHORONIDS)				
<u>PHORONIS ARCHITECTA</u>	0	0.0	1	0.252
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>ACTECCINA CANDEI</u>	0	0.0	1	0.252
<u>NASSARIUS ACUTUS</u>	0	0.0	8	2.015
<u>NATICA PUSILLA</u>	1	0.189	0	0.0
<u>TURBONILLA CONRADI</u>	0	0.0	1	0.252
PELECYPODA (CLAMS)				
<u>CHIONE CANCELLATA</u>	1	0.189	0	0.0
<u>ERVILIA CONCENTRICA</u>	17	3.220	2	0.504
<u>LUCINA MULTILINEATA</u>	6	1.136	16	4.030
<u>PERIPLOMA MARGARITACEUM</u>	2	0.379	6	1.511
<u>TELLINA AEQUISTRIATA</u>	0	0.0	1	0.252
<u>TELLINA TEXANA</u>	8	1.515	0	0.0
<u>TELLINA VERSICOLOR</u>	39	7.386	32	8.060
<u>TRACYPARDIUM MURICATUM</u>	1	0.189	0	0.0
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	24	4.545	12	3.023
POLYCHAETA				
<u>APCPRINCIPLO PYGMAEA</u>	1	0.189	1	0.252
<u>ARICIDEA FRAGILIS</u>	0	0.0	1	0.252
<u>ARICIDEA SUECICA</u>	3	0.568	1	0.252
<u>ARMANDIA AGILIS</u>	1	0.189	0	0.0
<u>ARMANDIA MACULATA</u>	1	0.189	1	0.252
<u>ERANIA WELFLEETENSIS</u>	3	0.568	0	0.0
<u>CERATONEREIS IRRITABILIS</u>	0	0.0	1	0.252
<u>CHONE SP.</u>	7	1.326	5	1.259
<u>ETECNE LACTEA</u>	2	0.379	9	2.267
<u>GLYCERA AMERICANA</u>	1	0.189	5	1.259
<u>GLYCERA DIORANCHIATA</u>	0	0.0	12	3.023
<u>GONIADA LIITOREA</u>	11	2.083	5	1.259
<u>GRUBEULEPIS MEXICANA</u>	1	0.189	0	0.0
<u>HAPLOSCOLOPLOS FOLIOSUS</u>	6	1.136	3	0.756
<u>LUMBRINERIS CRUZENSIS</u>	207	39.205	107	26.952
<u>LUMBRINERIS TETRAURA</u>	6	1.136	27	6.801
<u>MEDICMASTUS CALIFORNIENSIS</u>	0	0.0	1	0.252
<u>MESOCALOPTERUS SAGITTARIUS</u>	1	0.189	4	1.008
<u>NEANTILES ACUMINATA</u>	2	0.379	0	0.0
<u>NEANTILES SUCCINEA</u>	1	0.189	0	0.0
<u>NEPHTYS PICTA</u>	15	2.841	4	1.008
<u>NOTOMASTUS HEMIPODUS</u>	0	0.0	2	0.504
<u>ONUPFIS EREMITA OCULATA</u>	4	0.758	6	1.511

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

10/3/77

(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF INC. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>PARANAITES SPECIOSA</u>	1	0.189	0	0.0
<u>PARACNICES LYRA</u>	18	3.409	25	6.297
<u>PARACNIS FULGENS</u>	1	0.189	0	0.0
<u>PARAPRIONOSPIO PINNATA</u>	1	0.189	0	0.0
<u>PHYLLODOCE ARENAE</u>	2	0.379	1	0.252
<u>PRIONOSPIO CRISTATA</u>	6	1.136	2	0.504
<u>POLLIERINCREIS MEXICANA</u>	11	2.083	5	1.259
<u>SCOLELEPIS TEXANA</u>	0	0.0	1	0.252
<u>SCOLCIPLOS RUBRA</u>	0	0.0	2	0.504
<u>SIGAMBRA BASSI</u>	2	0.379	0	0.0
<u>SPIO PETTIBONEAE</u>	4	0.758	1	0.252
<u>SPIOCHAETOPTERUS OCULATUS</u>	7	1.326	1	0.252
SIPUNCULIDA (PEANUT WORMS)				
UNIDENTIFIED SP.	2	0.379	1	0.252
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>ACANTHOCHAUSTORIUS SP.</u>	3	0.568	0	0.0
<u>AMPELISCA VERRILLI</u>	2	0.379	1	0.252
<u>GITANOOPSIS SP.</u>	1	0.189	0	0.0
<u>LEPIDACTYLUS SP.</u>	14	2.652	1	0.252
<u>LITSTRIELLA SP.</u>	2	0.379	2	0.504
<u>PSILOPLATYISCHNOPUS SP.</u>	16	3.030	19	4.786
<u>SYNCFELIDIUM SP.</u>	4	0.758	7	1.763
ANCURA				
<u>ALBINEA PARETII</u>	0	0.0	1	0.252
<u>PAGURUS LONGICARPUS</u>	3	0.568	3	0.756
BRACHYLARA				
<u>PINNIXIA SAYANA</u>	0	0.0	1	0.252
<u>PINNOTHERES OSTREUM</u>	3	0.568	0	0.0
CARIDEA				
<u>PROCESSA FEMPHILLI</u>	1	0.189	1	0.252
CUMACEA				
<u>CYCLAESIS SP.</u>	4	0.758	7	1.763
<u>CYCLAESIS VARIANS</u>	2	0.379	2	0.504
<u>GYROSTYLIS SMITHI</u>	1	0.189	2	0.504
<u>SPILCUMA SALCMANI</u>	0	0.0	1	0.252
MYSIDACEA				
<u>MYSIDOPSIS BIGELOWI</u>	2	0.379	2	0.504
OSTRACODA				
UNIDENTIFIED SP.	1	0.189	0	0.0
PENAEIDA				
<u>LUCIFER FAXONI</u>	1	0.189	1	0.252
<u>TRACHYPENAEUS CONSTRICTUS</u>	1	0.189	2	0.504
ECHINODERMATA				
ECHINOIDEA (SAND DOLLARS; URCHINS)				
<u>MOIRA ATROPS</u>	2	0.379	0	0.0
OPHTHURIDEA (BRITTLE STARS)				
<u>HEMIPHYSALIS ELONGATA</u>	0	0.0	1	0.252
<u>MICROPHYLIS GRACILLIMA</u>	7	1.326	5	1.259
<u>OPHTHURAGNUS WURDEMANI</u>	1	0.189	0	0.0
UNIDENTIFIED SP.	2	0.379	1	0.252
CEPHALOCHORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	3	0.568	3	0.756

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
10/3/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
TOTALS	528		397	
NO. SPECIES		64		61
NO. IND. PER M2		2112		1588
S-W INDEX - H'(LN)		2.8345		3.1138
EVENNESS - J		0.6815		0.7575

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
11/1/77

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNIDARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	0	0.0	1	0.328
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	2	0.275	1	0.328
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	29	3.994	27	8.852
PHORONIDA (PHORONIDS)				
<u>PHORONIS ARCHITECTA</u>	1	0.138	0	0.0
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
NASSARIUS ACUTUS	4	0.551	4	1.311
NATICA FLUSILLA	1	0.138	1	0.328
OLIVA SAYANA	0	0.0	1	0.328
OLIVELLA MUTICA	4	0.551	0	0.0
TEREBRA DISLOCATA	4	0.551	1	0.328
TURBOCILLA CONRADII	3	0.413	0	0.0
PELECYFODA (CLAMS)				
CHIONE CANCELLATA	0	0.0	2	0.656
DIPLODONTIA SEMIASPERA	1	0.138	0	0.0
ERVILIA CONCENTRICA	4	0.551	0	0.0
LUCINA MULTILINEATA	10	1.377	5	1.639
NUCULANA ACUTA	0	0.0	1	0.328
PERIPLCMA MARGARITACEUM	10	1.377	0	0.0
TELLIDORA CRISTATA	1	0.138	0	0.0
TELLINA IRIS	0	0.0	3	0.984
TELLINA TEXANA	1	0.138	0	0.0
TELLINA VERTICOLOR	29	3.994	6	1.967
ANNELIDA (SEGMENTED WORMS)				
CLIGGCHAETA				
UNIDENTIFIED SP.	19	2.617	4	1.311
POLYCHAETA				
ANTINCE SP.	1	0.138	1	0.328
ARICICEA FAUVELI	0	0.0	1	0.328
ARICIDEA FRAGILIS	3	0.413	6	1.967
ARICIDEA PHILIDINAE	1	0.138	0	0.0
ARMANDIA MACULATA	7	0.964	0	0.0
CAULLERIELLA SP.	1	0.138	0	0.0
CHAELOZONE SETOSA	1	0.138	0	0.0
CHLOEIA VIRIDIS	1	0.138	0	0.0
CHONE SP.	10	1.377	1	0.328
CISTENIDES GOLDBII	1	0.138	0	0.0
EITEONE LACTEA	13	1.791	1	0.328
EULALIA SANGUINEA	0	0.0	1	0.328
GLYCERA AMERICANA	8	1.102	2	0.656
GLYCERA DIBRANCHIATA	2	0.275	25	8.197
GONIADA LITTORAEA	4	0.551	2	0.656
GRUBEULEFIS MEXICANA	1	0.138	0	0.0
GYPTIS BREVIPALPA	1	0.138	0	0.0
HAPLOSCELLOPLIS FOLIOSUS	2	0.275	0	0.0
HARMOTHCE LUNULATA	0	0.0	1	0.328
LUMBRINERIS CRUZENSIS	235	32.369	47	15.410
LUMBRINERIS TETRAURA	20	2.755	3	0.984
MAGELLANA RIOJAI	0	0.0	1	0.328

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL

11/1/77
(CONTINUED)

SPECIES	NC. CF IND. (C.)		NC. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>MEDIOASTILS CALIFORNIENSIS</u>	1	0.138	2	0.656
<u>NEANITHES SUCCINEA</u>	2	0.275	0	0.0
<u>NEPHIYS PICTA</u>	11	1.515	7	2.295
<u>NOTOMASTILS HEMIPODUS</u>	5	0.689	6	1.967
<u>ONUPHIS EREMITA OCULATA</u>	8	1.102	7	2.295
<u>PARANATHES SPECIOSA</u>	0	0.0	1	0.328
<u>PARACNIDES LYRA</u>	37	5.096	75	24.590
<u>PARANIS FULGENS</u>	5	0.689	0	0.0
<u>PARAFFINICSPIC PINNATA</u>	2	0.275	1	0.328
<u>PERLUS EHLERSI</u>	1	0.138	0	0.0
<u>PHYLLIDOCCE ARENAE</u>	1	0.138	0	0.0
<u>POLYNIDAE UNIDENTIFIED SP.</u>	1	0.138	1	0.328
<u>PRIONOSPIO CRISTATA</u>	38	5.234	2	0.656
<u>RULLIERINEREIS MEXICANA</u>	23	3.168	4	1.311
<u>SCOLOPLOS RUBRA</u>	1	0.138	0	0.0
<u>SPIO PETTIBONEAE</u>	3	0.413	1	0.328
<u>THARYX ANNULOSUS</u>	1	0.138	0	0.0
 SIPUNCULICA (PEANUT WORMS)				
<u>GOLFINGIA TRICHOCEPHALA</u>	2	0.275	0	0.0
 ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>AMPELISCA VERRILLI</u>	3	0.413	1	0.328
<u>ERICHONILUS SP.</u>	2	0.275	1	0.328
<u>PARAPHOXUS SP.</u>	3	0.413	0	0.0
<u>PSEUDOPLATYSCHOPIUS SP.</u>	22	3.030	26	8.525
<u>SYCHELIDIUM SP.</u>	10	1.377	2	0.656
ANCMURA				
<u>ALBULENA PARETII</u>	3	0.413	1	0.328
<u>EUCERAMUS PRAELONGUS</u>	0	0.0	1	0.328
<u>PAGURUS LONGICARPUS</u>	7	0.964	0	0.0
BRACHYLARA				
<u>OVALIPES OCELLATUS</u>	1	0.138	1	0.328
<u>PINNIXIA SAYANA</u>	0	0.0	1	0.328
CALLINANASSIDAE				
<u>CALLINANASSA JAMAICENSE</u>	0	0.0	1	0.328
CUMACEA				
<u>CYCLAPSIUS SP.</u>	10	1.377	1	0.328
<u>CYCLAPSIUS VARIANS</u>	3	0.413	2	0.656
<u>GXYUECTYLIS SMITHI</u>	8	1.102	1	0.328
LEPTOCSTRA				
<u>NEBALIA SP.</u>	1	0.138	3	0.984
MYSIDACEA				
<u>BOWMANIELLA SP.</u>	1	0.138	0	0.0
<u>MYSIDOPSIS BIGELOWI</u>	1	0.138	0	0.0
OSTRACODA				
<u>UNIDENTIFIED SP.</u>	3	0.413	1	0.328
PENAEIDAE				
<u>TRACYPENAEUS CONSTRICTUS</u>	1	0.138	0	0.0
TANAIDACEA				
<u>UNIDENTIFIED SP.</u>	1	0.138	0	0.0
 ECHINODERMATA				
ECHINOIDEA (SAND DOLLARS; URCHINS)				
<u>MOIRA ATROPS</u>	2	0.275	0	0.0
<u>MELLITA QUINQUESPERFORATA</u>	55	7.576	0	0.0
OPHIURIDEA (BRITTLE STARS)				
<u>MICROPHOLIS GRACILLIMA</u>	3	0.413	3	0.984
<u>OPHIOPHRAGMUS WURDEMANI</u>	0	0.0	1	0.328

CEPHALOCHORDATA (LANCELETS)

TREASURE ISLAND MOTEL (STATION 1) - CONTROL AND EXPERIMENTAL
11/1/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>FRANCHIOSTOMA FLORIDAE</u>	9	1.240	2	0.656
TOTALS	726		305	
NO. SPECIES		72		54
NO. IND. PER M2		2904		1220
S-W INDEX - H*(LN)		3.0259		2.8764
EVENNESS - J		0.7085		0.7211

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL
7/11/77

SPECIES	NO. OF IND. (C.) TOTAL PERCENT	NO. OF INC. (E.) TOTAL PERCENT
CNIDARIA		
ACTINIARIA (SEA ANEMONES)		
UNIDENTIFIED SP.	1 0.048	5 0.330
PLATYHELMINTHES		
TURBELLARIA (FLATWORMS)		
UNIDENTIFIED SP.	2 0.095	5 0.330
NEMERTINEA (RIBBON WORMS)		
UNIDENTIFIED SP.	51 2.425	52 3.435
NEMATODA (ROUNDWORMS)		
UNIDENTIFIED SP.	9 0.428	0 0.0
BRACHIOPOCA (LAMP SHELLS)		
<u>GLOTTIDIA PYRAMIDATA</u>	8 0.380	4 0.264
MOLLUSCA (SHELLFISH)		
GASTROPODA (SNAILS)		
<u>ACTECCINA CANALICULATA</u>	1 0.048	0 0.0
<u>ACTECCINA CANDEI</u>	39 1.854	1 0.066
<u>BULLA STRIATA</u>	1 0.048	0 0.0
<u>CAECUM IMBRICATUM</u>	2 0.095	0 0.0
<u>CYLIPTENELLA BIDENTATA</u>	2 0.095	6 0.396
<u>DIASTOMA VARIUM</u>	18 0.856	1 0.066
<u>NATICA PUSILLA</u>	6 0.285	0 0.0
<u>CLIVA SAYANA</u>	1 0.048	0 0.0
<u>POLINICES DUPLICATUS</u>	3 0.143	3 0.198
<u>TEREFERA DISLOCATA</u>	1 0.048	0 0.0
PELECYPODA (CLAMS)		
<u>ERVILIA CONCENTRICA</u>	52 2.473	0 0.0
<u>LEPTIN SP.</u>	0 0.0	3 0.198
<u>LUCINA MULTILINEATA</u>	167 7.941	45 2.972
<u>PERIPLOMA MARGARITACEUM</u>	8 0.380	1 0.066
<u>PITAE SIMPSONI</u>	4 0.190	0 0.0
<u>SOLEA VIRIDIS</u>	0 0.0	1 0.066
<u>TELLINA AEGUISTRATA</u>	1 0.048	1 0.066
<u>TELLINA TAMPAENSIS</u>	3 0.143	0 0.0
<u>TELLINA TEXANA</u>	20 0.951	9 0.594
<u>TELLINA VERSICOLOR</u>	182 8.654	68 4.491
ANNELIDA (SEGMENTED WORMS)		
OLIGOCHAETA		
UNIDENTIFIED SP.	35 1.664	17 1.123
POLYCHAETA		
<u>AGLAFHATUS VERRILLI</u>	1 0.048	0 0.0
<u>APCPRICKSPIC PYGMAEA</u>	7 0.333	12 0.793
<u>ARICIDEA CERRUTI</u>	1 0.048	0 0.0
<u>ARICIDEA FRAGILIS</u>	10 0.476	15 1.255
<u>ARICIDEA PHILEINAE</u>	5 0.238	0 0.0
<u>ARICIDEA SUECICA</u>	0 0.0	11 0.727
<u>ARMANDIA AGILIS</u>	0 0.0	5 0.330
<u>ARMANDIA MACULATA</u>	0 0.0	1 0.066
<u>CARAZZIELLA SP.</u>	6 0.285	0 0.0
<u>CAULLERIELLA SP.</u>	1 0.048	0 0.0
<u>CHONE SP.</u>	53 2.520	15 0.991
<u>CISTENICES GOULDII</u>	0 0.0	1 0.066
<u>DISPID UNCINATA</u>	0 0.0	5 0.330
<u>ETECNE LACTEA</u>	10 0.476	0 0.0
<u>GLYCERA AMERICANA</u>	104 4.945	102 6.737

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL
7/11/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
GLYCERA DIBRANCHIATA	0	0.0	2	0.132
GONIADA LITTORAEA	18	0.856	15	0.991
GRUBEULEFIS MEXICANA	2	0.095	0	0.0
GYPTIS VITTATA	4	0.190	4	0.264
HAPLICSCLOPUS FOLIOSUS	1	0.048	4	0.264
HAPLICSCLOPUS FRAGILIS	3	0.143	3	0.198
HAPLICSCLOPUS ROBUSTUS	0	0.0	2	0.132
HARMITHOE LUNULATA	1	0.048	0	0.0
LUMBERINERIS CRUZENSIS	391	18.592	246	16.446
LUMBERINERIS TETRAURA	22	1.046	6	0.396
MAGELINA LONGICORNIS	0	0.0	1	0.066
MAGELINA SP.	3	0.143	2	0.132
MEDICMASTUS CALIFORNIENSIS	5	0.238	1	0.066
MESOCYCAETOPTERUS SAGITTARIUS	0	0.0	1	0.066
MICROPHthalmus SP.	1	0.048	0	0.0
NEANTHES ACUMINATA	3	0.143	2	0.132
NEANTHES SUCCINEA	0	0.0	2	0.132
NEPHYS BUCERA	4	0.190	4	0.264
NEPHYS PICTA	280	13.314	391	25.826
NEREIS LAMELLOSA	0	0.0	2	0.132
NOTCMASTUS HEMIPODUS	1	0.048	2	0.132
ONUPHIS EREMITA OCLATA	54	2.568	37	2.444
ONUPHIS NEBULOSA	5	0.238	0	0.0
OWENIA FUSIFORMIS	5	0.238	4	0.264
PARANATHES SPECIOSA	1	0.048	0	0.0
PARACNIDES LYRA	53	2.520	148	9.775
PARACNIS FULGENS	6	0.285	0	0.0
PARAPRIONOSPION PINNATA	2	0.095	6	0.396
PHYLLODOCE ARENAE	3	0.143	2	0.132
PIDARKE OBSCURA	1	0.048	0	0.0
POECILCCHAETUS JOHNSONI	1	0.048	2	0.132
PRIONOSPION CRISTATA	27	1.284	12	0.793
PSEUDEURYTHOE AMBIGUA	1	0.048	0	0.0
RULLIERINERIS MEXICANA	4	0.190	0	0.0
SABELLA MICROPHthalmus	0	0.0	1	0.066
SCCLELEPTIS SQUAMATA	4	0.190	0	0.0
SCCLELEPTIS TEXANA	0	0.0	1	0.066
SCCLCFLCS ARMIGER	6	0.285	6	0.396
SCCLCFLCS RUERA	2	0.095	0	0.0
SIGALION ARENICOLA	2	0.095	0	0.0
SIGAMERA BASSI	2	0.095	0	0.0
SPIO PETTIBONEAE	0	0.0	1	0.066
SPIOCYCAETOPTERUS OCLATUS	0	0.0	1	0.066
SPIOPLANES DOMBYX	18	0.856	27	1.783
SIPUNCULIDA (PEANUT WORMS)				
GOLFINGIA TRICHOCEPHALA	1	0.048	0	0.0
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
ACANTHOPHAUSTORIUS SP.	2	0.095	0	0.0
AMPELISCA ABDITA	11	0.523	2	0.132
AMPELISCA VADORUM	5	0.238	0	0.0
AMPELISCA VERRILLI	40	1.902	37	2.444
ARGISSA SP.	1	0.048	2	0.132
CAPRELLIDAE UNIDENTIFIED SP.	3	0.143	2	0.132
ERICHTHONIUS SP.	2	0.095	0	0.0
GAMMAFOPUS SP.	1	0.048	0	0.0
LISTERIELLA SP.	12	0.571	3	0.198
LYSIANCSIS SP.	1	0.048	1	0.066
MONACULODES SP.	2	0.095	1	0.066

TREASURE ISLAND MOTEL (STATION 1) - CONTROL & EXPERIMENTAL
7/11/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>PLECTIS SP.</u>	6	0.285	0	0.0
<u>PROCTAUSTORIUS SP.</u>	0	0.0	1	0.066
<u>PSEUDOPLATYISCHNOPUS SP.</u>	26	1.236	15	0.991
<u>SYNCHELICUM SP.</u>	68	3.233	40	2.642
ANOMURA				
<u>ALBUNEA FARETII</u>	0	0.0	1	0.066
BRACHYURA				
<u>PINNIXIA CYLINDRICA</u>	4	0.190	0	0.0
<u>PORTUNUS SP.</u>	0	0.0	12	0.793
PORTUNIDAE UNIDENTIFIED SP.	6	0.285	0	0.0
CARIDEA				
<u>OGYRIDES ALPHAEOSTRIS</u>	0	0.0	6	0.396
<u>OGYRIDES LIMICOLA</u>	0	0.0	2	0.132
<u>PERCIVINUS LONGICAUCATUS</u>	0	0.0	1	0.066
<u>PROCESSA HEMPHILLI</u>	5	0.238	3	0.198
CUMACEA				
<u>CYCLAPSIDES SP.</u>	19	0.903	4	0.264
<u>CYCLAPSIDES VARIANS</u>	82	3.899	22	1.453
<u>OXYUROSTYLIS SMITHI</u>	24	1.141	5	0.330
LEPTOSTRACA				
<u>NEBALIA SP.</u>	1	0.048	1	0.066
MYSIDACEA				
UNIDENTIFIED SP.	1	0.048	1	0.066
OSTRACODA				
UNIDENTIFIED SP.	1	0.048	0	0.0
PENAEIDAE				
<u>TRACHYPENAEUS CONSTRICTUS</u>	0	0.0	2	0.132
STOMATOPODA				
<u>ACANTHOSQUILLA BIMINIENSIS</u>	1	0.048	0	0.0
ECHINODERMATA				
HOLOTHUROIDEA (SEA CUCUMBERS)				
<u>LEPTOSYNAPTE SP.</u>	3	0.143	11	0.727
OPHIURIDAE (BRITTLE STARS)				
<u>OPHIOPHRAGMUS WURDEMANI</u>	1	0.048	0	0.0
UNIDENTIFIED SP.	6	0.285	3	0.198
HEMICHORDATA				
ENTEROPNEUSTA (ACORN WORMS)				
UNIDENTIFIED SP.	1	0.048	0	0.0
CEPHALOCHORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	14	0.666	2	0.132
VERTEBRATA				
PISCES (FISHES)				
<u>HEMIFEROCNITUS NOVACULA</u>	2	0.095	0	0.0
TOTALS	2103		1514	
NO. SPECIES		99		81
NO. IND. PER M2		3365		2422
S-W INDEX - H'(LN)		3.2301		2.8904
EVENNESS - J		0.7029		0.6577

SUN & SWIM MOTEL (STATION 2) - CONTROL & EXPERIMENTAL
7/15/77

SPECIES	NO. OF IND. (C.)		NO. CF INC. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNIDARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	1	0.043	0	0.0
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	12	0.512	16	0.663
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	57	2.432	45	1.864
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	16	0.683	10	0.414
BRACHIOPODA (LAMP SHELLS)				
<u>GLOTTIDIA PYRAMIDATA</u>	10	0.427	10	0.414
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>ACTECCINA CANALICULATA</u>	0	0.0	1	0.041
<u>ACTECCINA CANDEI</u>	19	0.811	32	1.326
<u>ANACHIS FLORIDANA</u>	0	0.0	1	0.041
<u>BULLA STRIATA</u>	1	0.043	4	0.166
<u>CYLIPTINELLA BIDENTATA</u>	4	0.171	4	0.166
<u>CIASTOMA VARIUM</u>	21	0.896	16	0.663
<u>NATICA PUSILLA</u>	10	0.427	21	0.870
<u>OLIVELLA BULLULA</u>	1	0.043	1	0.041
<u>OLIVELLA MINUTA</u>	0	0.0	3	0.124
<u>OLIVELLA MUTICA</u>	3	0.128	0	0.0
<u>POLINICES DUPLICATUS</u>	1	0.043	2	0.083
<u>TEREERA DISLOCATA</u>	2	0.085	0	0.0
<u>TURBOCILLA ELEGANTULA</u>	1	0.043	1	0.041
PELECYPODA (CLAMS)				
<u>ANATINA ANATINA</u>	3	0.128	2	0.083
<u>ERVILIA CONCENTRICA</u>	41	1.749	44	1.823
<u>LAEVICARDIUM LAEVIGATUM</u>	5	0.213	16	0.663
<u>LEPTIN SP.</u>	2	0.085	0	0.0
<u>LUCINA MULTILINEATA</u>	191	8.148	19	0.787
<u>MACRCCALLISTA NIMBOSA</u>	0	0.0	1	0.041
<u>MUSCULUS LATERALIS</u>	1	0.043	0	0.0
<u>PERIPLEMA MARGARITACEUM</u>	5	0.213	18	0.746
<u>PITAR SIMPSONI</u>	0	0.0	1	0.041
<u>TELLINA AQUISTRATA</u>	6	0.256	4	0.166
<u>TELLINA TEXANA</u>	19	0.811	5	0.373
<u>TELLINA VERSICOLOR</u>	262	11.177	196	8.119
<u>TRACHYCARDIUM MURICATUM</u>	3	0.128	9	0.373
<u>VARICORBULA OPERCULATA</u>	5	0.213	0	0.0
VENERIDAE UNIDENTIFIED SP.	53	2.261	45	1.864
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	46	1.962	55	2.278
POLYCHAETA				
<u>APOPHICNOSPIQ PYGMAEA</u>	2	0.085	6	0.249
<u>ARICICEA FRAGILIS</u>	9	0.384	2	0.083
<u>ARICICEA PHILBINAE</u>	7	0.299	0	0.0
<u>ARICICEA SUECICA</u>	0	0.0	1	0.041
<u>ARICICEA SP.</u>	0	0.0	2	0.083
<u>ARMANCIA AGILIS</u>	10	0.427	13	0.539
<u>ARMANCIA MACULATA</u>	13	0.555	21	0.870

SUN & SWIM MOTEL (STATION 2) - CONTROL & EXPERIMENTAL

7/15/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>BRANIA WELLFLEETENSIS</u>	1	0.043	0	0.0
<u>CAPITELLA CAPITATA</u>	0	0.0	3	0.124
<u>CERATOCEREIS IRRITABILIS</u>	0	0.0	1	0.041
<u>CHONE SP.</u>	28	1.195	30	1.243
<u>CIRRIPHEUS LYRIFORMIS</u>	9	0.384	15	0.621
<u>CISTENIDES GULDII</u>	2	0.085	1	0.041
<u>DISPIC UNCINATA</u>	0	0.0	2	0.083
<u>ETECNE LACTEA</u>	10	0.427	6	0.249
<u>EULALIA SANGUINEA</u>	1	0.043	0	0.0
<u>GLYCERA AMERICANA</u>	87	3.712	92	3.811
<u>GONIADA LITTOFEA</u>	18	0.768	13	0.539
<u>GRUBEULEPIS MEXICANA</u>	3	0.128	1	0.041
<u>GYPTIS VITTATA</u>	7	0.299	3	0.124
<u>HAPLISCOCLEPUS FOLIOSUS</u>	2	0.085	2	0.083
<u>HAPLISCOCLEPUS FRAGILIS</u>	1	0.043	2	0.083
<u>HARMOTHOE LUNULATA</u>	1	0.043	0	0.0
<u>LUMBRINERIS CRUZENSIS</u>	397	16.937	437	18.103
<u>LUMBRINERIS TETRAURA</u>	16	0.683	13	0.539
<u>MAGELCNA SP.</u>	2	0.085	5	0.207
<u>MEDICMASTUS CALIFORNIENSIS</u>	0	0.0	1	0.041
<u>MICROPHTHALMUS SCZELKOWII</u>	1	0.043	0	0.0
<u>MICROPHTHALMUS SP.</u>	3	0.128	0	0.0
<u>NEANTHES ACUMINATA</u>	1	0.043	1	0.041
<u>NEPHYS BUCERA</u>	5	0.213	3	0.124
<u>NEPHYS PICTA</u>	206	8.788	122	5.054
<u>NEREIS LAWELLCSA</u>	2	0.085	0	0.0
<u>NOTICMASTUS HEMIPODUS</u>	0	0.0	1	0.041
<u>NOTICMASTUS LATERICEUS</u>	1	0.043	0	0.0
<u>OPHIS EREMITA OCULATA</u>	34	1.451	51	2.113
<u>OPHELIA SP.</u>	1	0.043	0	0.0
<u>OWENIA FUSIFORMIS</u>	21	0.896	9	0.373
<u>PARACNIDES LYRA</u>	83	3.541	42	1.740
<u>PARACNIS FULGENS</u>	6	0.256	3	0.124
<u>PARAPRIONOSPIO PINNATA</u>	0	0.0	1	0.041
<u>PHYLLODOCE ARENAE</u>	1	0.043	11	0.456
<u>PRIONOSPIO CRISTATA</u>	44	1.877	46	1.906
<u>RUILLIERINEREIS MEXICANA</u>	5	0.213	7	0.290
<u>SABELLA MICROPHTHALMA</u>	5	0.213	0	0.0
<u>SCOLELEPIS TEXANA</u>	0	0.0	2	0.083
<u>SCOLEPUS ARMIGER</u>	10	0.427	14	0.580
<u>SCOLEPUS RUDRA</u>	1	0.043	1	0.041
<u>SIGAMERA BASSI</u>	0	0.0	1	0.041
<u>SPHAEROSYLLIS SP.</u>	0	0.0	1	0.041
<u>SPIO PETTIBONEAE</u>	1	0.043	1	0.041
<u>SPIOPLANES BOMBAYX</u>	9	0.384	6	0.249
<u>STREPTOSYLLIS ARENAE</u>	0	0.0	1	0.041
<u>WEBSTERINEREIS TRIDENTATA</u>	0	0.0	1	0.041

SIPUNCULICA (PEANUT WORMS)
GOLFINGIA TRICHOCEPHALA

1 0.043 0 0.0

ARTROPODA (CRUSTACEANS)
AMPHIPODA

<u>ACANTHOHAUSTORIUS SP.</u>	7	0.299	12	0.497
<u>AMPELISCA ADDITA</u>	2	0.085	4	0.166
<u>AMPELISCA VACCUM</u>	4	0.171	4	0.166
<u>AMPELISCA VERRILLI</u>	32	1.365	56	2.320
<u>ARGISSA SP.</u>	4	0.171	6	0.249
<u>CAPRELLIDAE UNIDENTIFIED SP.</u>	4	0.171	2	0.083
<u>CARINORATEA SP.</u>	1	0.043	0	0.0
<u>ERICHTHONIS SP.</u>	2	0.085	1	0.041

SLN & SWIM MOTEL (STATION 2) - CONTROL & EXPERIMENTAL

7/15/77

(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>HIPPOMEDON SP.</u>	1	0.043	1	0.041
<u>LISTERIELLA SP.</u>	9	0.384	11	0.456
<u>LYSIANOPSIS SP.</u>	1	0.043	6	0.249
<u>MELITA APPENDICULATA</u>	4	0.171	1	0.041
<u>MICRODELTOPUS SP.</u>	1	0.043	2	0.083
<u>MONOCLODES SP.</u>	3	0.128	7	0.290
<u>PHOTIS SP.</u>	1	0.043	1	0.041
<u>PRYTCHAUSTORIUS SP.</u>	3	0.128	9	0.373
<u>PSEUDCHAUSTORIUS SP.</u>	38	1.621	36	1.491
<u>PSEUDOPHYLLISCHNEPUS SP.</u>	57	2.432	72	2.983
<u>SYNCHYLIDUM SP.</u>	69	2.944	81	3.355
<u>UNIDENTIFIED SP.</u>	4	0.171	1	0.041
ANOMURA				
<u>ALBUNEA FAFETII</u>	3	0.128	2	0.083
<u>PAGURUS LONGICARPUS</u>	1	0.043	1	0.041
BRACHYLFA				
<u>PINNIXIA SAYANA</u>	1	0.043	6	0.249
<u>FINNCTHERES OSTREUM</u>	6	0.256	0	0.0
<u>PORTULUS SP.</u>	16	0.683	17	0.704
CARIDEA				
<u>LATREUTES PARVULUS</u>	0	0.0	1	0.041
<u>OGYRIDES LIMICOLA</u>	3	0.128	7	0.290
<u>PROCESSA HEMPHILLI</u>	10	0.427	20	0.829
CUMACEA				
<u>CYCLAPSIS SP.</u>	45	1.920	83	3.438
<u>CYCLAPSIS VARIANS</u>	59	2.517	229	9.486
<u>CYXIDOSTYLIS SMITHI</u>	39	1.664	59	2.444
<u>UNIDENTIFIED SP.</u>	1	0.043	1	0.041
LEPTOSTRACA				
<u>NEBALIA SP.</u>	10	0.427	50	2.071
MYSIDACEA				
<u>MYSIDOPSIS BIGELOWI</u>	1	0.043	0	0.0
<u>UNIDENTIFIED SP.</u>	5	0.213	8	0.331
OSTRACCA				
<u>UNIDENTIFIED SP.</u>	1	0.043	6	0.249
PENAEIDEA				
<u>SICYCNIA BREVIROSTRIS</u>	0	0.0	2	0.083
<u>TRACHYPENAEUS CONSTRICTUS</u>	2	0.085	1	0.041
STOMATOPODA				
<u>ACANTHOSQUILLA BIMINIENSIS</u>	2	0.085	0	0.0
<u>CORONIS EXCAVATRIX</u>	0	0.0	1	0.041
ECHINODERMATA				
ASTEROIDEA (STARFISHES)				
<u>LUIDIA ALTERNATA</u>	1	0.043	0	0.0
HOLOTHUROIDEA (SEA CUCUMBERS)				
<u>LEPTOSYNAPTIA SP.</u>	1	0.043	2	0.083
OPHIURIDEA (BRITTLE STARS)				
<u>UNIDENTIFIED SP.</u>	10	0.427	4	0.166
HEMICHORDATA				
ENTEROPNEUSTA (ACORN WORMS)				
<u>UNIDENTIFIED SP.</u>	0	0.0	1	0.041
CEPHALOCHORDATA (LANCELETS)				
<u>BRANCHISTOMA FLORIDAE</u>	12	0.512	15	0.621
VERTEBRATA				
PISCES (FISHES)				
<u>HEMIPHTERONOTUS NOVACULA</u>	0	0.0	1	0.041
<u>LEPOPHIDIUM GRAELLII</u>	0	0.0	1	0.041

SLN & SWIM MOTEL (STATION 2) - CONTROL & EXPERIMENTAL

7/15/77

(CONTINUED)

SPECIES	NO. CF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT

TOTALS	2344	112	2414	114
NO. SPECIES		3750		3862
NO. IND. PER M2		3.4273		3.5029
S-H INDEX - H' (LN)		0.7264		0.7396
EVENNESS - J				

HILTON HOLICAY INN (STATION 3) - CONTROL & EXPERIMENTAL
7/25/77

SPECIES	NO. OF TOTAL	IND. (C.) PERCENT	NO. OF TOTAL	IND. (E.) PERCENT
CNIDARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	0	0.0	5	0.198
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	5	0.333	37	1.467
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	49	1.812	57	2.259
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	18	0.666	28	1.110
PHORONIDA (PHORONIDS)				
<u>PHORONIS ARCHITECTA</u>	1	0.037	3	0.119
BRACHIOPODA (LAMP SHELLS)				
<u>GLOTTIDIA PYRAMIDATA</u>	0	0.0	4	0.159
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>ACTECCINA CANALICULATA</u>	0	0.0	1	0.040
<u>ACTECCINA CANDEI</u>	27	0.999	10	0.396
<u>ANACHIS FLORICANA</u>	1	0.037	1	0.040
<u>BULLA STRIATA</u>	2	0.074	0	0.0
<u>CAECUM IMBRICATUM</u>	1	0.037	0	0.0
<u>CAECUM PULCHELLUM</u>	3	0.111	0	0.0
<u>CYLICHELLA GIDENTATA</u>	11	0.407	0	0.0
<u>DIASOMA VARIUM</u>	83	3.070	23	0.912
<u>MELANELLA JAMAICENSIS</u>	0	0.0	1	0.040
<u>NATICA PUSILLA</u>	46	1.701	30	1.189
<u>OLIVA SAYANA</u>	1	0.037	0	0.0
<u>OLIVELLA MINUTA</u>	5	0.185	4	0.159
<u>OLIVELLA MUTICA</u>	7	0.259	7	0.277
<u>PHILINE SAGRA</u>	0	0.0	4	0.159
<u>POLINICES DUPLICATUS</u>	1	0.037	1	0.040
<u>TURBNILLA CONRADI</u>	6	0.222	11	0.436
PELECYPODA (CLAMS)				
<u>ANATINA ANATINA</u>	4	0.148	4	0.159
<u>ERVILIA CONCENTRICA</u>	27	0.999	18	0.713
<u>LAEVICARDIUM LAEVIGATUM</u>	1	0.037	0	0.0
<u>LEPTA SP.</u>	10	0.370	4	0.159
<u>LUCINA MULTILINEATA</u>	53	1.960	69	2.735
<u>LYONSIA H. FLORICANA</u>	0	0.0	1	0.040
<u>MACOMA CONSTRICTA</u>	2	0.074	0	0.0
<u>PANDORA TRILINEATA</u>	0	0.0	1	0.040
<u>PERIPLOMA MARGARITACEUM</u>	2	0.074	2	0.079
<u>PITAR SIMPSONI</u>	47	1.738	29	1.149
<u>STRIGILLA MIRABILIS</u>	4	0.148	8	0.317
<u>TELLINA AEQUISTRATA</u>	2	0.074	18	0.713
<u>TELLINA TEXANA</u>	363	13.425	349	13.833
<u>TELLINA VERSICOLOR</u>	203	7.507	166	6.579
<u>TRACYCARDIUM MURICATUM</u>	3	0.111	2	0.079
VENERIDAE UNIDENTIFIED SP.	12	0.444	37	1.467
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	39	1.442	8	0.317
POLYCHAETA				

HILTON HOLIDAY INN (STATION 3) - CONTROL & EXPERIMENTAL

7/25/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
AMERICCNUPHIS MAGNA	2	0.074	0	0.0
APCPHICNSPIC PYGMAEA	1	0.037	2	0.079
ARICIDEA FRAGILIS	9	0.333	37	1.467
ARICIDEA PHILIPINAE	0	0.0	1	0.040
ARICIDEA SUECICA	2	0.074	2	0.079
ARMANDIA AGILIS	6	0.222	3	0.119
ARMANDIA MACULATA	35	1.294	23	0.912
BRANIA CLAVATA	1	0.037	1	0.040
BRANIA WELFLEETENSIS	6	0.222	6	0.238
CHONE SP.	33	1.220	19	0.753
CIRRHOPHORUS LYRIFORMIS	0	0.0	15	0.595
CISTENICES GOULDII	1	0.037	1	0.040
DIOPATRA CUPREA	0	0.0	4	0.159
DISPIC UNCINATA	0	0.0	5	0.198
ETECNE LACTEA	6	0.222	12	0.476
GLYCERA AMERICANA	20	0.740	19	0.753
GONIADA LITTOREA	6	0.222	0	0.0
GRUBEULEPIS MEXICANA	2	0.074	11	0.436
GYPTIS VIITATA	1	0.037	0	0.0
LAFONEREIS CULVERI	0	0.0	5	0.198
LOIMIA MEDUSA	3	0.111	0	0.0
LUMBRINERIS CRUZENSIS	653	24.149	500	19.818
LUMBRINERIS TETRAURA	2	0.074	0	0.0
LYSIDICE NINETIA	1	0.037	0	0.0
MAGELCNA SP.	17	0.629	20	0.793
MEDICMASTUS CALIFORNIENSIS	1	0.037	0	0.0
MESOCHAETOPTERUS SAGITTARIUS	10	0.370	13	0.515
NEANTHES ACUMINATA	1	0.037	2	0.079
NEPHYS BUCERA	5	0.333	12	0.476
NEPHYS PICTA	81	2.996	71	2.814
NEREIS LAMELLCSA	1	0.037	0	0.0
NOTOMASTUS HEMIPODUS	2	0.074	3	0.119
NOTOMASTUS LATERICEUS	1	0.037	0	0.0
ONUPHIS EREMITA OCULATA	8	0.296	21	0.832
PARACNIDES LYRA	46	1.701	6	0.238
PARACNIS FULGENS	10	0.370	3	0.119
PARAFRICNSPIO PINNATA	1	0.037	0	0.0
PARAFRICNSYLLIS LONGICIRRATA	0	0.0	4	0.159
PHYLLIDICE ARENAE	1	0.037	6	0.238
PPECILICHAETUS JOHNSONI	0	0.0	1	0.040
PRICNSPIC CRISTATA	56	2.071	55	2.180
RULLIEFINERIS MEXICANA	4	0.148	1	0.040
SABELLA MICROPHTHALMA	1	0.037	0	0.0
SCCLELEPIS TEXANA	3	0.111	3	0.119
SCCLCFLCS ARMIGEF	2	0.074	1	0.040
SCCLCFLCS RUERA	1	0.037	1	0.040
SIGAMERA BASSI	11	0.407	13	0.515
SPIO PETTIBONEAE	2	0.074	2	0.079
SPIOCHAETOPTERUS OCULATUS	1	0.037	1	0.040
SPIOPLANES DOMBYX	1	0.037	2	0.079
STREPTOSYLLIS ARENAE	0	0.0	1	0.040

ARTHROPODA (CRUSTACEANS)

AMPHIPODA

ACANTHOHAUSTORIUS SP.	1	0.037	0	0.0
AMPELISCA ABDITA	4	0.148	3	0.119
AMPELISCA VERRILLI	16	0.592	13	0.515
ARGISSA SP.	3	0.111	7	0.277
ELASMOPUS SP.	1	0.037	0	0.0
LISTRIELLA SP.	9	0.333	7	0.277
MELITA APPENDICULATA	3	0.111	0	0.0

HILTON HOLIDAY INN (STATION 3) - CONTROL & EXPERIMENTAL
7/25/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>MICRODEUTOPUS SP.</u>	10	0.370	4	0.159
<u>MONOCULODES SP.</u>	22	0.814	30	1.189
<u>PROTOFAUSTORIUS SP.</u>	146	5.399	242	9.592
<u>PSEUDOFALSTORIUS SP.</u>	9	0.333	4	0.159
<u>PSEUDOPLATYISCHNOPLUS SP.</u>	118	4.364	115	4.558
<u>SYNCHELIDIUM SP.</u>	26	0.962	41	1.625
ANOMURA				
<u>ALBUNEA PARETII</u>	3	0.111	5	0.198
<u>PAGURUS LONGICARPUS</u>	3	0.111	1	0.040
BRACHYURA				
<u>HEPATIS EPHELITICUS</u>	0	0.0	1	0.040
<u>OVALIPES OCELLATUS</u>	0	0.0	1	0.040
<u>PINNIXIA SAYANA</u>	12	0.444	0	0.0
<u>PINNOTHERES OSTREUM</u>	1	0.037	0	0.0
<u>PORTUNUS SP.</u>	9	0.333	2	0.079
CARIDEA				
<u>LATRELTES PARVULUS</u>	1	0.037	0	0.0
<u>PROCESSA HEMPHILLI</u>	7	0.259	2	0.079
CLMACEA				
<u>CYCLAPSIS SP.</u>	22	0.814	59	2.338
<u>CYCLAPSIS VARIANS</u>	55	2.034	61	2.418
<u>OXYLOSTYLIS SMITHI</u>	6	0.222	13	0.515
ISOPODA				
<u>EDOTEA MONTOSA</u>	1	0.037	0	0.0
LEPTOSTRACA				
<u>NEBALIA SP.</u>	13	0.481	11	0.436
MYSIDACEA				
UNIDENTIFIED SP.	10	0.370	4	0.159
OSTRACODA				
UNIDENTIFIED SP.	14	0.518	17	0.674
PENAEIDA				
<u>TRACHYPENAEUS CONSTRICTUS</u>	0	0.0	1	0.040
ECHINODERMATA				
OPHIURIDEA (BRITTLE STARS)				
UNIDENTIFIED SP.	5	0.185	8	0.317
CEPHALOCHORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	69	2.552	19	0.753
VERTEBRATA				
PISCES (FISHES)				
<u>HEMPIERONOTUS NOVACULA</u>	1	0.037	1	0.040
TOTALS	2704		2523	
NO. SPECIES	105		98	
NO. IND. PER M2	4326		4037	
S-W INDEX - H' (LN)	3.1958		3.2651	
EVENNESS - J	0.6867		0.7121	

SANDPIPER MOTEL (STATION 4) - CONTROL & EXPERIMENTAL
7/26/77

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNICARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	2	0.079	1	0.062
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	11	0.435	1	0.062
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	36	1.422	34	2.103
NEMATODA (ROUNDWORMS)				
UNIDENTIFIED SP.	0	0.0	1	0.062
PHORONIDA (PHORONIDS)				
<u>PHORONIS ARCHITECTA</u>	0	0.0	1	0.062
BRACHIOPODA (LAMP SHELLS)				
<u>GLYPTIDIA PYRAMICATA</u>	1	0.040	8	0.495
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>ACTEOCINA CANDEI</u>	0	0.0	1	0.062
<u>CYLICHNELLA BIDENTATA</u>	51	2.015	23	1.422
<u>NATICA PUSILLA</u>	36	1.422	10	0.618
<u>OLIVELLA MINUTA</u>	7	0.277	2	0.124
<u>OLIVELLA MUTICA</u>	7	0.277	3	0.186
<u>PHILINE SAGRA</u>	1	0.040	1	0.062
<u>TURBNILLA CONRADI</u>	5	0.198	1	0.062
<u>TURBNILLA SP.</u>	3	0.119	1	0.062
PELECYPODA (CLAMS)				
<u>ERVILIA CONCENTRICA</u>	15	0.593	1	0.062
<u>LEPTON SP.</u>	29	1.146	1	0.062
<u>LUCINA MULTILINEATA</u>	13	0.514	157	9.709
<u>PERIPLOMA MARGARITACEUM</u>	0	0.0	1	0.062
<u>PITAR SIMPSONI</u>	114	4.504	18	1.113
<u>STRIGILLA MIRABILIS</u>	14	0.553	5	0.309
<u>TELLINA AEQUISTRATA</u>	0	0.0	4	0.247
<u>TELLINA IRIS</u>	0	0.0	11	0.680
<u>TELLINA TEXANA</u>	443	17.503	89	5.504
<u>TELLINA VESICOLOR</u>	102	4.030	120	7.421
<u>TRACHYCARDIUM MURICATUM</u>	4	0.158	4	0.247
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	5	0.198	1	0.062
POLYCHAETA				
<u>AONICES MAYAQUEZENSIS</u>	0	0.0	16	0.989
<u>APOPHICNOSPION PYGMAEA</u>	0	0.0	2	0.124
<u>ARICICEA FRAGILIS</u>	0	0.0	1	0.062
<u>ARMANCIA AGILIS</u>	28	1.106	57	3.525
<u>ARMANDIA MACULATA</u>	19	0.751	17	1.051
<u>ERANIA WELFLEETENSIS</u>	13	0.514	13	0.804
<u>CAPITELLA CAPITATA</u>	2	0.079	33	2.041
<u>CERATONEREIS IRRITABILIS</u>	0	0.0	1	0.062
<u>CHONE SP.</u>	3	0.119	2	0.124
<u>DISPIC UNCINATA</u>	0	0.0	1	0.062
<u>ETEONE ALBA</u>	1	0.040	0	0.0
<u>ETEONE LACTEA</u>	9	0.356	1	0.062
<u>GLYCERA AMERICANA</u>	28	1.106	65	4.020

SANDPIPER MOTEL (STATION 4) - CONTROL & EXPERIMENTAL

7/26/77

(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>GONIACA LITTOREA</u>	0	0.0	2	0.124
<u>GRUEFULEPIS MEXICANA</u>	0	0.0	4	0.247
<u>GYPTIS VITTATA</u>	0	0.0	10	0.618
<u>FAPLCSCOLOPLOS FOLIOSUS</u>	0	0.0	7	0.433
<u>FAPLCSCOLOPLOS FRAGILIS</u>	2	0.079	2	0.124
<u>FAPLCSCOLOPLOS ROBUSTUS</u>	0	0.0	4	0.247
<u>HEMIPODUS ROSEUS</u>	1	0.040	0	0.0
<u>LOIMIA MEDUSA</u>	0	0.0	4	0.247
<u>LUMBERINERIS CRUZENSIS</u>	521	20.585	129	7.978
<u>MAGELCNA SP.</u>	10	0.395	4	0.247
<u>MESOCFAETOPTERUS SAGITTARIUS</u>	13	0.514	30	1.855
<u>NEANTHES ACUMINATA</u>	0	0.0	3	0.186
<u>NEPHTYS BUCERA</u>	26	1.027	12	0.742
<u>NEPHTYS PICTA</u>	2	0.079	143	8.844
<u>NOTOMASTUS HEMIPODUS</u>	0	0.0	1	0.062
<u>ONUPHIS EREMITA OCULATA</u>	22	0.869	10	0.618
<u>OPHELIA SP.</u>	0	0.0	2	0.124
<u>ORBINIA RISERI</u>	2	0.079	3	0.186
<u>PARANAITES SPECIOSA</u>	1	0.040	21	1.299
<u>PARACNIS FULGENS</u>	61	2.410	4	0.247
<u>PARAPRIONOSPIO PINNATA</u>	0	0.0	1	0.062
<u>PHYLLODOCE ARENAE</u>	4	0.158	5	0.309
<u>PHYLC ORNATUS</u>	1	0.040	0	0.0
<u>POLYDORA SOCIALIS</u>	1	0.040	0	0.0
<u>POLYDORA TETRABRANCHIA</u>	2	0.079	0	0.0
<u>PRIONOSPIO CRISTATA</u>	18	0.711	7	0.433
<u>RULLIERINEREIS MEXICANA</u>	0	0.0	8	0.495
<u>SCOLCPLCS ARMIGER</u>	8	0.316	10	0.618
<u>SIGALION ARENICOLA</u>	0	0.0	3	0.186
<u>SIGAMBRA BASSI</u>	0	0.0	33	2.041
<u>SPIO PETTIBONEAE</u>	6	0.237	21	1.299
<u>SPIOPHANES BOMBYX</u>	6	0.237	9	0.557
<u>STREPTOSYLLIS ARENAE</u>	1	0.040	0	0.0
SIPUNCULIDA (PEANUT WORMS)				
UNIDENTIFIED SP.	5	0.198	3	0.186
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>AMPELISCA ABDITA</u>	2	0.079	6	0.371
<u>AMPELISCA VERRILLI</u>	8	0.316	1	0.062
<u>ARGISSA SP.</u>	2	0.079	0	0.0
<u>LISTRIELLA SP.</u>	2	0.079	1	0.062
<u>MONOCILLIDES SP.</u>	10	0.395	1	0.062
<u>PROTOHAUSTORIUS SP.</u>	385	15.211	38	2.350
<u>PSEUDHAUSTORIUS SP.</u>	15	0.593	25	1.546
<u>PSEUDOPLATYISCHNOPUS SP.</u>	141	5.571	38	2.350
<u>SYNCELIDIUM SP.</u>	52	2.055	5	0.309
ANCMURA				
<u>ALBUNEA PARETII</u>	1	0.040	5	0.309
<u>PAGURLS LONGICARPUS</u>	3	0.119	5	0.309
BRACHYLRA				
<u>PINNIXIA CRISTATA</u>	1	0.040	0	0.0
<u>PINNIXIA LEPTOSYNAPTAE</u>	0	0.0	3	0.186
<u>PINNIXIA PEARSEI</u>	0	0.0	1	0.062
<u>PINNIFERES OSTREUM</u>	0	0.0	3	0.186
<u>PORTUNUS SP.</u>	4	0.158	1	0.062
CALLINANASSIDAE				
<u>CALLINANASSA JAMAICENSE</u>	0	0.0	1	0.062
CARIDEA				
<u>HIPPCLYTE PLEURACANTHA</u>	1	0.040	0	0.0

SANDPIPER MOTEL (STATION 4) - CONTROL & EXPERIMENTAL

7/26/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>OGYRIDES LIMICOLA</u>	1	0.040	0	0.0
<u>PROCESSA HEMPHILLI</u>	8	0.316	4	0.247
CUMACEA				
<u>CYCLAPSIS SP.</u>	14	0.553	4	0.247
<u>CYCLAPSIS VARIANS</u>	101	3.991	17	1.051
<u>OXYUROSTYLIS SMITHI</u>	4	0.158	2	0.124
LEPTOSTRACA				
<u>NEBALIA SP.</u>	5	0.198	9	0.557
GSTRACCA				
UNIDENTIFIED SP.	28	1.106	7	0.433
PENAIDEA				
<u>PENAEUS DUORARUM</u>	1	0.040	0	0.0
SICMATOPODA				
<u>ACANTHOSQUILLA BIMINIENSIS</u>	0	0.0	1	0.062
ECHINODERMATA				
ASTEROIDEA (STARFISHES)				
<u>LUDIA ALTERNATA</u>	0	0.0	1	0.062
ECHINOIDEA (SAND DOLLARS; URCHINS)				
<u>MELLITA QUINQUESPERFORATA</u>	6	0.237	3	0.186
OPHIUROIDEA (BRITTLE STARS)				
UNIDENTIFIED SP.	5	0.198	39	2.412
HEMICHORCATA				
ENTEROPNEUSTA (ACORN WORMS)				
UNIDENTIFIED SP.	0	0.0	1	0.062
CEPHALOCORDATA (LANCELETS)				
<u>BRANCHISTOMA FLORIDAE</u>	16	0.632	191	11.812
TOTALS	2531		1617	
NG. SPECIES	74		94	
NO. IND. PER M2	4050		2587	
S-W INDEX - H' (LN)	2.8718		3.4385	
EVENNESS - J	0.6672		0.7568	

PEPPERTREE CONDOMINIUM (STATION 5) - CONTROL & EXPERIMENTAL
7/27/77

SPECIES	NO. OF IND. (C.)		NO. CF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNICARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	3	0.341	0	0.0
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	0	0.0	3	0.180
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	29	3.295	45	2.703
PHORONIDA (PHORONIDS)				
<u>PHORONIS ARCHITECTA</u>	0	0.0	1	0.060
BRACHIOPODA (LAMP SHELLS)				
<u>GLOTTIDIA PYRAMIDATA</u>	0	0.0	1	0.060
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>ACTEOCINA CANDEI</u>	1	0.114	0	0.0
<u>ANACTIS FLORICANA</u>	0	0.0	1	0.060
<u>CYLICHNELLA BIDENTATA</u>	3	0.341	20	1.201
<u>NATICA FUSILLA</u>	5	0.568	29	1.742
<u>OLIVELLA MINUTA</u>	0	0.0	2	0.120
<u>OLIVELLA MUTICA</u>	2	0.227	2	0.120
<u>POLINICES DUPLICATUS</u>	3	0.341	1	0.060
<u>TEREBRA DISLOCATA</u>	1	0.114	2	0.120
<u>TURBNILLA SP.</u>	2	0.227	11	0.661
PELECYPODA (CLAMS)				
<u>CUNA DALLI</u>	0	0.0	1	0.060
<u>ERVILIA CONCENTRICA</u>	2	0.227	5	0.300
<u>LEPTON SP.</u>	7	0.795	9	0.541
<u>LUCINA MULTILINEATA</u>	8	0.909	3	0.180
<u>PITAE SIMPSONI</u>	17	1.932	11	0.661
<u>STRIGILLA MIRABILIS</u>	5	0.568	6	0.360
<u>TELLINA IRIS</u>	0	0.0	1	0.060
<u>TELLINA TEXANA</u>	40	4.545	255	15.315
<u>TELLINA VERSICOLOR</u>	94	10.682	90	5.405
<u>TRACHYCARDIUM MURICATUM</u>	0	0.0	1	0.060
ANNELIDA (SEGMENTED WORMS)				
POLYCHAETA				
<u>ARMANDIA AGILIS</u>	1	0.114	95	5.706
<u>ARMANDIA MACULATA</u>	2	0.227	3	0.180
<u>ERANIA CLAVATA</u>	0	0.0	1	0.060
<u>CAPITELLA CAPITATA</u>	0	0.0	1	0.060
<u>CHONE SP.</u>	0	0.0	1	0.060
<u>DISPID UNCINATA</u>	2	0.227	1	0.060
<u>ETONE LACTEA</u>	0	0.0	1	0.060
<u>GLYCERA AMERICANA</u>	6	0.682	20	1.201
<u>GRUBEULEPIS MEXICANA</u>	0	0.0	1	0.060
<u>GYPTIS VITTATA</u>	0	0.0	1	0.060
<u>HAPLSCOLOPLOS FOLIOSUS</u>	0	0.0	1	0.060
<u>LOINJA MEDUSA</u>	0	0.0	1	0.060
<u>LUMBRINERIS CRUZENSIS</u>	62	7.045	286	17.177
<u>MAGELCNA PETTIBONEAE</u>	1	0.114	0	0.0
<u>MAGELCNA RIOJAI</u>	29	3.295	12	0.781
<u>MAGELCNA SP.</u>	1	0.114	1	0.060
<u>MESOCYCAETOPTERUS SAGITTARIUS</u>	13	1.477	10	0.601
<u>NEANTHES ACUMINATA</u>	9	1.023	3	0.180

PEPPERTREE CONDOMINIUM (STATION 5) - CONTROL & EXPERIMENTAL
7/27/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>NEPHTYS BUCERA</u>	50	5.682	22	1.321
<u>NEPHTYS PICTA</u>	1	0.114	5	0.300
<u>ONUPHIS EREMITA OCULATA</u>	28	3.182	15	0.901
<u>ORBINIA RISERI</u>	0	0.0	9	0.541
<u>PARACNIS FULGENS</u>	11	1.250	0	0.0
<u>PHYLLODOCE ARENAE</u>	3	0.341	15	1.141
<u>PRIONOSPIO CRISTATA</u>	2	0.227	3	0.180
<u>RULLIERINEREIS MEXICANA</u>	0	0.0	1	0.060
<u>SCOLELEPIS TEXANA</u>	0	0.0	1	0.060
<u>SCOLOPLCS ARMIGER</u>	0	0.0	1	0.060
<u>SIGALION ARENICOLA</u>	0	0.0	2	0.120
<u>SIGAMBRA BASSI</u>	0	0.0	2	0.120
<u>SPIO PETTIBONEAE</u>	20	2.273	7	0.420
<u>SPIOPHANES BOMBYX</u>	6	0.682	5	0.541
<u>STREPTOSYLLIS ARENAE</u>	4	0.455	0	0.0
SIPUNCULIDA (PEANUT WORMS)				
UNIDENTIFIED SP.	1	0.114	3	0.180
ARTHROPODA (CRUSTACEANS)				
AMPHIPCDA				
<u>ACANTHOHAUSTORIUS SP.</u>	5	1.023	0	0.0
<u>AMPELISCA VERRILLI</u>	0	0.0	1	0.060
<u>LISTRIELLA SP.</u>	0	0.0	2	0.120
<u>LYSIANDRIS SP.</u>	0	0.0	1	0.060
<u>MONOCLODES SP.</u>	9	1.023	13	0.781
<u>PROTOHAUSTORIUS SP.</u>	246	27.955	245	14.715
<u>PSEUDOCALSTORIUS SP.</u>	10	1.136	66	3.964
<u>PSEUDOPLATYISCHNOPUS SP.</u>	37	4.205	152	9.129
<u>SYNCHELIDIUM SP.</u>	15	1.705	15	0.901
ANCMURA				
<u>ALBINEA PARETII</u>	3	0.341	1	0.060
BRACHYLRA				
<u>PINNIXIA CRISTATA</u>	4	0.455	0	0.0
<u>PINNOTHERES SP.</u>	3	0.341	5	0.300
<u>PORTUNUS SP.</u>	2	0.341	2	0.120
CALLINASSIDAE				
<u>CALLINASSA JAMAICENSE</u>	0	0.0	4	0.240
CARIDEA				
<u>HIPPECLYTE PLEURACANTHA</u>	0	0.0	2	0.120
<u>PROCESSA HEMPHILLI</u>	8	0.909	2	0.120
CLMACEA				
<u>CYCLAPSIS SP.</u>	18	2.045	8	0.480
<u>CYCLAPSIS VARIANS</u>	14	1.591	40	2.402
<u>CXYLOSTYLIS SMITHI</u>	0	0.0	4	0.240
UNIDENTIFIED SP.	0	0.0	2	0.120
ISCPEDA				
<u>ANCINA DEPRESSUS</u>	3	0.341	0	0.0
<u>CHIRIDOTEA EXCAVATA</u>	9	1.023	0	0.0
LEPTOSTRACA				
<u>NEBALIA SP.</u>	0	0.0	5	0.300
MYSIDACEA				
<u>PRAUNUS FLEXUOSUS</u>	3	0.341	0	0.0
OSTRACCTA				
UNIDENTIFIED SP.	4	0.455	2	0.120
PENAEIDA				
<u>TRACHYPENAEUS CONSTRICTUS</u>	1	0.114	3	0.180
ECHINODERMATA				
ECHINGIDEA (SAND COLLARS; URCHINS)				
<u>MELLITA QUINQUESPERFORATA</u>	0	0.0	2	0.120

PEPPERTREE CONDOMINIUM (STATION 5) - CONTROL & EXPERIMENTAL
7/27/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
HOLOTHUROIDEA (SEA CUCUMBERS)				
UNIDENTIFIED SP.	0	0.0	13	0.781
OPHIURCIDEA (BRITTLE STARS)				
OPHIOPHRAGMUS MOOREI	0	0.0	5	0.300
OPHIOPHRAGMUS BURDEMANI	4	0.455	0	0.0
UNIDENTIFIED SP.	1	0.114	7	0.420
HEMICHORDATA				
ENTEROPNEUSTA (ACORN WORMS)				
UNIDENTIFIED SP.	0	0.0	1	0.060
CEPHALOCHORDATA (LANCELETS)				
BRANCHIOSTOMA FLORIDAE	2	0.227	23	1.381
TOTALS	880		1665	
NO. SPECIES		57		80
NO. IND. PER M2		1408		2664
S-W INDEX - H' (LN)		2.9751		2.9427
EVENNESS - J		0.7359		0.6715

BLUE DOLPHIN MOTEL (STATION 6) - CONTROL & EXPERIMENTAL
7/28/77

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
CNICARIA				
ACTINIARIA (SEA ANEMONES)				
UNIDENTIFIED SP.	1	0.064	0	0.0
PLATYHELMINTHES				
TURBELLARIA (FLATWORMS)				
UNIDENTIFIED SP.	0	0.0	1	0.053
NEMERTINEA (RIBBON WORMS)				
UNIDENTIFIED SP.	33	2.126	57	3.006
PHORONIDA (PHORONIDS)				
<u>PHORONIS ARCHITECTA</u>	0	0.0	1	0.053
BRACHIOPODA (LAMP SHELLS)				
<u>GLOTTIDIA PYRAMIDATA</u>	0	0.0	19	1.002
MOLLUSCA (SHELLFISH)				
GASTROPODA (SNAILS)				
<u>CYLICHNELLA BIDENTATA</u>	24	1.546	31	1.635
<u>NATICA PUSTILLA</u>	1	0.064	15	0.791
<u>OLIVELLA MINUTA</u>	2	0.129	2	0.105
<u>OLIVELLA MUTICA</u>	1	0.064	4	0.211
<u>POLINICES DUPLICATUS</u>	0	0.0	1	0.053
<u>TEREERA CONCAVA</u>	1	0.064	0	0.0
<u>TURBINILLA CONRADI</u>	3	0.193	0	0.0
<u>TURBINILLA SP.</u>	11	0.709	6	0.316
PELECYPODA (CLAMS)				
<u>ERVILIA CONCENTRICA</u>	4	0.258	1	0.053
<u>LEPTON SP.</u>	13	0.838	3	0.158
<u>LUCINA MULTILINEATA</u>	18	1.160	74	3.903
<u>PERILECNA MARGARITACEUM</u>	0	0.0	2	0.105
<u>PITAE SIMPSONI</u>	53	3.415	17	0.897
<u>STRIGILLA MIRABILIS</u>	4	0.258	5	0.264
<u>TELLINA AEQUISTRIATA</u>	0	0.0	1	0.053
<u>TELLINA TEXANA</u>	217	13.982	137	7.226
<u>TELLINA VERSICOLOR</u>	108	6.959	58	5.169
<u>TRACHYCARDIUM MURICATUM</u>	0	0.0	1	0.053
ANNELIDA (SEGMENTED WORMS)				
OLIGOCHAETA				
UNIDENTIFIED SP.	4	0.258	1	0.053
POLYCHAETA				
<u>APOPRIONOSPIO PYGMAEA</u>	2	0.129	4	0.211
<u>ARICIDEA FRAGILIS</u>	1	0.064	5	0.264
<u>ARMANDIA AGILIS</u>	36	2.320	87	4.589
<u>ARMANDIA MACULATA</u>	20	1.289	26	1.371
<u>BRANIA CLAVATA</u>	0	0.0	4	0.211
<u>BRANIA WELFLEETENSIS</u>	4	0.258	2	0.105
<u>CAPITELLA CAPITATA</u>	1	0.064	53	2.795
<u>CHONE SP.</u>	1	0.064	2	0.105
<u>DISPIO UNCINATA</u>	1	0.064	0	0.0
<u>ETEONE LACTEA</u>	1	0.064	2	0.105
<u>GLYCERA AMERICANA</u>	13	0.838	6	0.316
<u>GONIACA LITICEA</u>	0	0.0	1	0.053
<u>GYPTIS VITTATA</u>	0	0.0	10	0.527
<u>HAPLOSCLOPLOS ROBUSTUS</u>	0	0.0	1	0.053
<u>LOIMIA MEDUSA</u>	1	0.064	1	0.053
<u>LUMBINERIS CRUZENSIS</u>	195	12.564	208	10.970
<u>MAGELCNA RIOJAI</u>	3	0.193	1	0.053

BLUE DOLPHIN MOTEL (STATION 6) - CONTROL & EXPERIMENTAL
7/28/77
(CONTINUED)

SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>MAGELCNA SP.</u>	12	0.773	8	0.422
<u>MESOCIAETOPTERUS SAGITTARIUS</u>	9	0.580	12	0.633
<u>MINUSPIO CIRRIFERA</u>	1	0.064	0	0.0
<u>NEANTHES ACUMINATA</u>	0	0.0	28	1.477
<u>NEPHIYS BUCERA</u>	35	2.255	26	1.371
<u>NEPHIYS PICTA</u>	18	1.160	49	2.584
<u>ONUPHIS EREMITA OCULATA</u>	8	0.515	9	0.475
<u>ORBINIA RISER I</u>	2	0.129	7	0.369
<u>PARANAUTES SPECIOSA</u>	0	0.0	2	0.105
<u>PARACNIS FULGENS</u>	17	1.095	8	0.422
<u>PHYLLODOCE ARENAE</u>	6	0.387	19	1.002
<u>POLYCORA SOCIALIS</u>	2	0.129	0	0.0
<u>POLYCORA TETRABRANCHIA</u>	0	0.0	1	0.053
<u>PRIONOSPION CRISTATA</u>	4	0.258	10	0.527
<u>ROLLIERINEREIS MEXICANA</u>	0	0.0	2	0.105
<u>SCOLELEPIS TEXANA</u>	0	0.0	1	0.053
<u>SCOLOPLOS ARMIGER</u>	4	0.258	2	0.105
<u>SCOLOPLOS RUBRA</u>	2	0.129	0	0.0
<u>SIGAMBRA BASSI</u>	1	0.064	0	0.0
<u>SPIO PETTIBONEAE</u>	7	0.451	15	0.791
<u>SPIOPHANES BOMBYX</u>	11	0.709	13	0.686
SIPUNCULIDA (PEANUT WORMS)				
UNIDENTIFIED SP.	4	0.258	4	0.211
ARTHROPODA (CRUSTACEANS)				
AMPHIPODA				
<u>ACANTHCHAUSTORIUS SP.</u>	1	0.064	0	0.0
<u>AMPELISCA ABDITA</u>	0	0.0	1	0.053
<u>ERICHTHONIUS SP.</u>	0	0.0	1	0.053
<u>LEMBOS SP.</u>	0	0.0	1	0.053
<u>LISTRIELLA SP.</u>	5	0.322	3	0.158
<u>MELITA APPENDICULATA</u>	0	0.0	1	0.053
<u>MICROCERCTOPUS SP.</u>	0	0.0	24	1.266
<u>MONCCULODES SP.</u>	9	0.580	31	1.635
<u>PROCTHAUSTORIUS SP.</u>	307	19.781	245	12.922
<u>PSEUDCHAUSTORIUS SP.</u>	20	1.289	25	1.319
<u>PSEUDOPLATYISCHNOPUS SP.</u>	114	7.345	50	2.637
<u>SYNCHELIDIUM SP.</u>	23	1.482	4	0.211
BRACHYURA				
<u>CALLINECTES SAPIDUS</u>	0	0.0	2	0.105
<u>DISSODACTYLUS MELLITAE</u>	13	0.838	30	1.582
<u>PINNIXIA SAYANA</u>	0	0.0	9	0.475
CALLINANASSIDAE				
<u>CALLINANASSA JAMAICENSE</u>	4	0.258	4	0.211
CARIDEA				
<u>HIPPOLYTE PLEURACANTHA</u>	0	0.0	5	0.264
<u>PROCESSA HEMPHILLI</u>	1	0.064	5	0.264
CUMACEA				
<u>CYCLAPSIS SP.</u>	25	1.611	19	1.002
<u>CYCLAPSIS VARIANS</u>	38	2.448	199	10.496
<u>CXYUFCSTYLIS SMITHI</u>	3	0.193	8	0.422
LEPTICSTRACA				
<u>NEBALIA SP.</u>	4	0.258	26	1.371
OSTRACODA				
UNIDENTIFIED SP.	17	1.095	4	0.211
STOMATOPODA				
<u>ACANTHOSQUILLA BIMINIENSIS</u>	0	0.0	1	0.053

ECHINODERMATA
ECHINOIDEA (SAND DOLLARS; URCHINS)

BLUE DOLPHIN MOTEL (STATION 6) - CONTROL & EXPERIMENTAL

7/28/77
(CONTINUED)

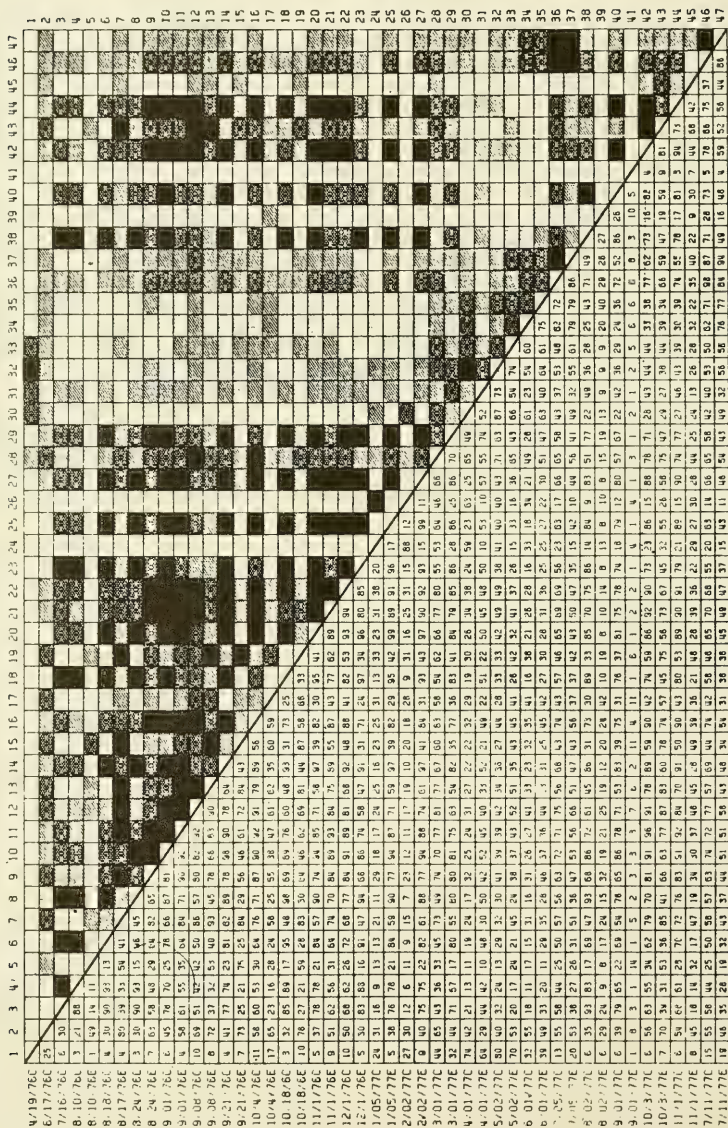
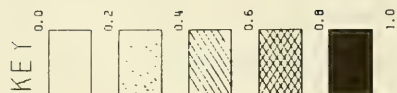
SPECIES	NO. OF IND. (C.)		NO. OF IND. (E.)	
	TOTAL	PERCENT	TOTAL	PERCENT
<u>MELLITA QUINQUIESPERFORATA</u>	18	1.160	35	1.846
<u>OPHTHURCTIDEA (BRITTLE STARS)</u>				
<u>OPHTHURCTIDEA BURDEMANI</u>	0	0.0	3	0.158
UNIDENTIFIED SP.	3	0.193	9	0.475
HEMICHORDATA				
ENTEROPNEUSTA (ACRON WORMS)				
UNIDENTIFIED SP.	1	0.064	2	0.105
CEPHALOCHORDATA (LANCELETS)				
<u>BRANCHIOSTOMA FLORIDAE</u>	26	1.675	43	2.268
TOTALS	1552		1896	
NO. SPECIES		66		83
NO. IND. PER M2		2483		3034
S-W INDEX - H*(LN)		3.0020		3.3704
EVENNESS - J		0.7165		0.7627

APPENDIX D

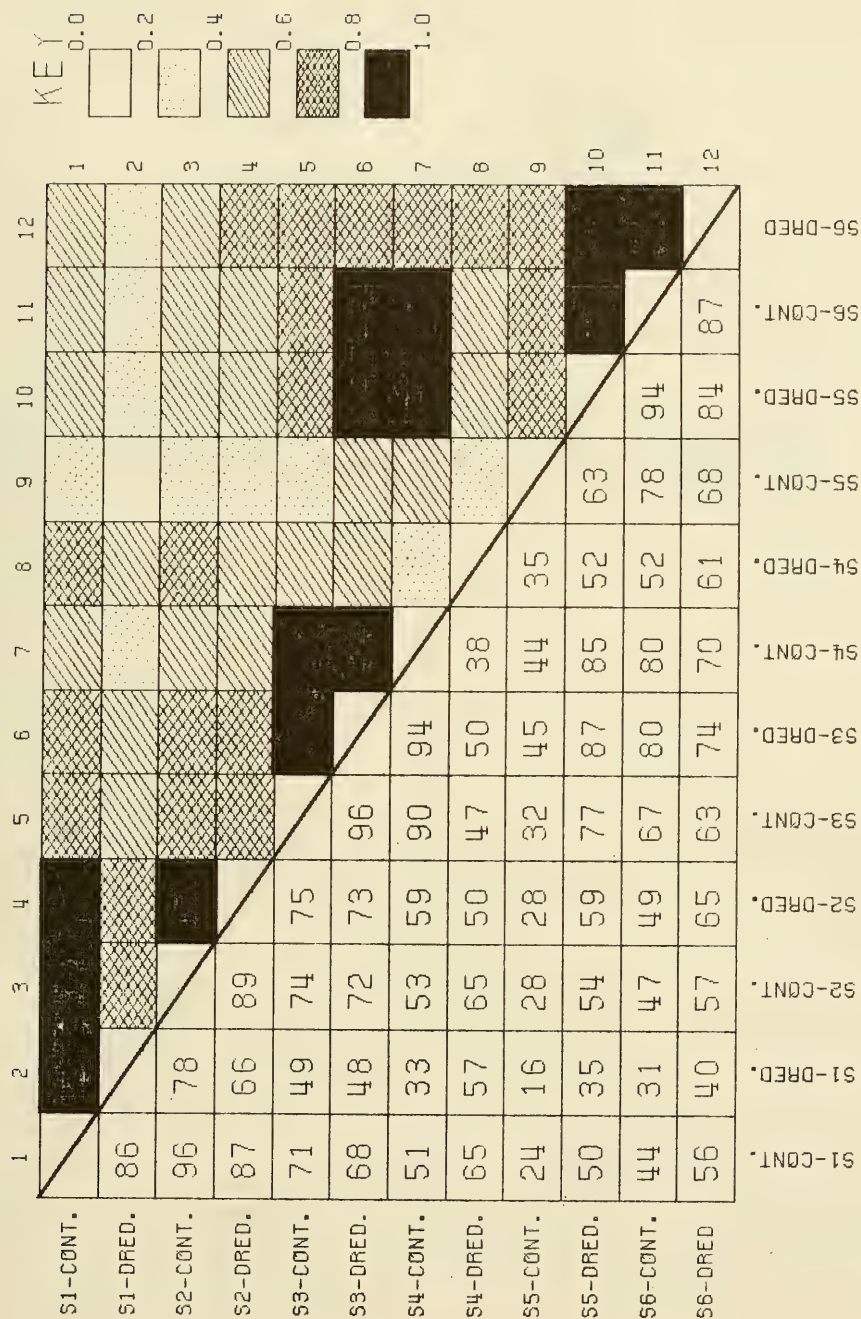
FAUNAL SIMILARITY MATRICES

Similarity matrices for time-sequence samples at station 1, and one time sampling at stations 1 to 6 (Morisita's Index without transformations or standardizations, and with matrix values multiplied by 100)--beach restoration project, Panama City Beach, Florida (November 1974 to November 1977).

TREASURE ISLAND (4/76-11/77)



STATIONS 1-6 (7/11/77)

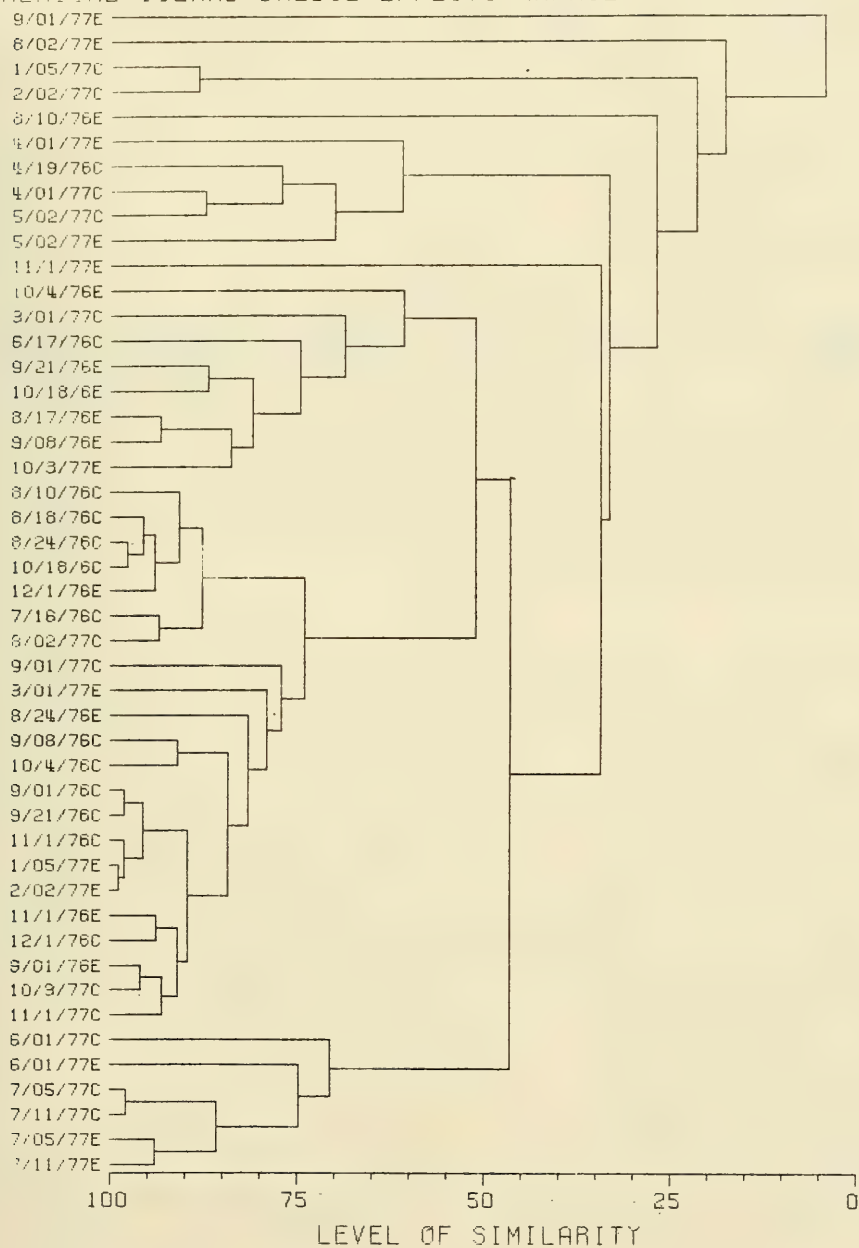


APPENDIX E

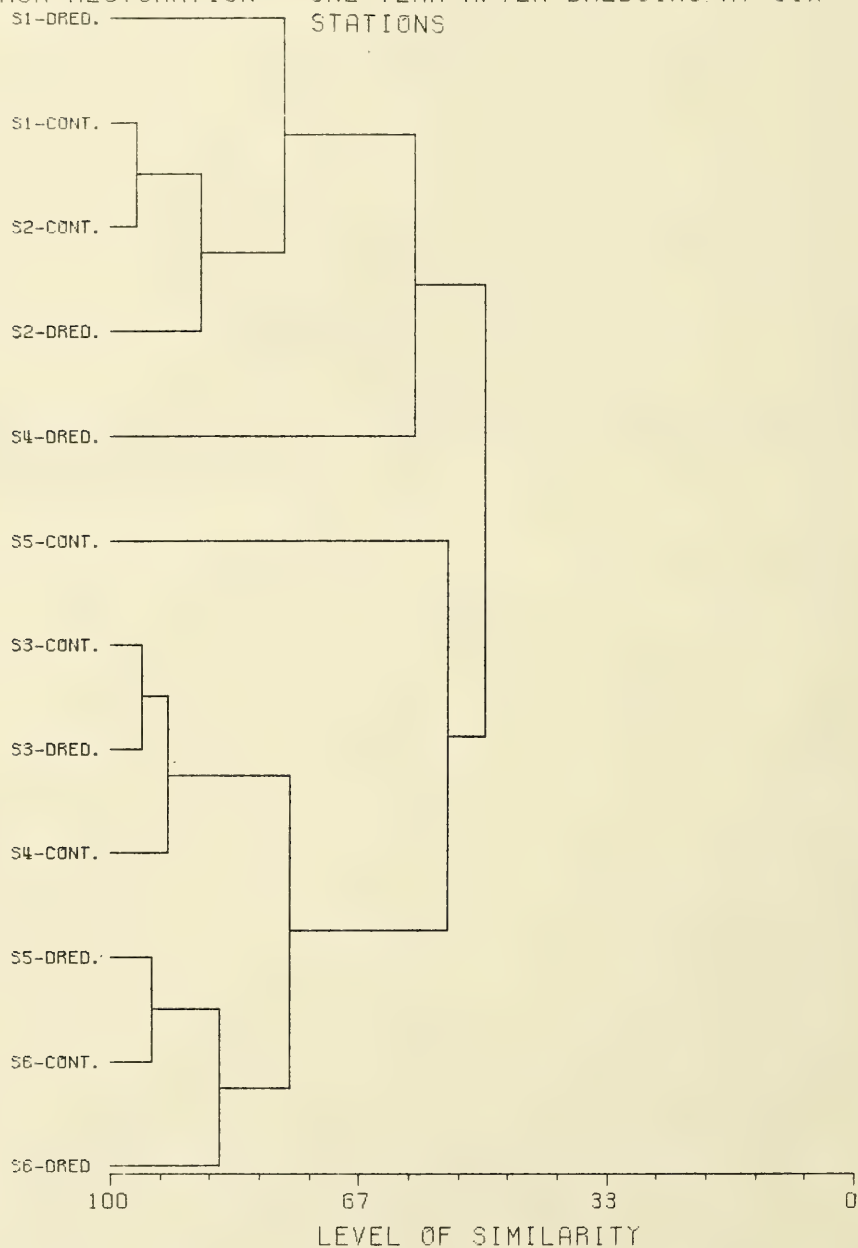
FAUNAL CLASSIFICATION ANALYSES

Classification analyses for time-sequence samples at station 1, and one-time sampling at stations 1 to 6 (Morisita's Index without transformations or standardizations)--beach restoration project, Panama City Beach, Florida (November 1974 to November 1977).

TREASURE ISLAND DREDGE EFFECTS (APRIL 1976- NOVEMBER 1977)



BEACH RESTORATION - ONE YEAR AFTER DREDGING AT SIX STATIONS

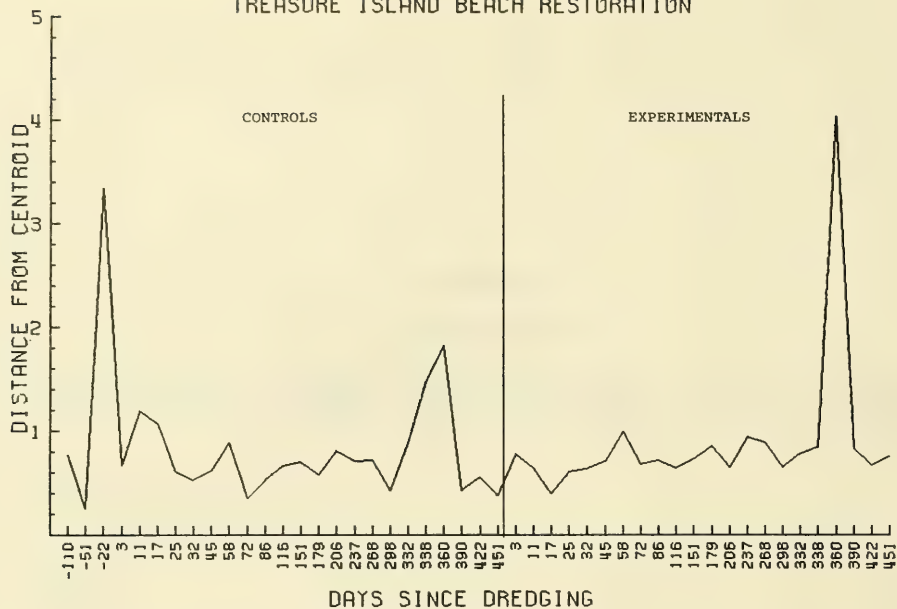


APPENDIX F

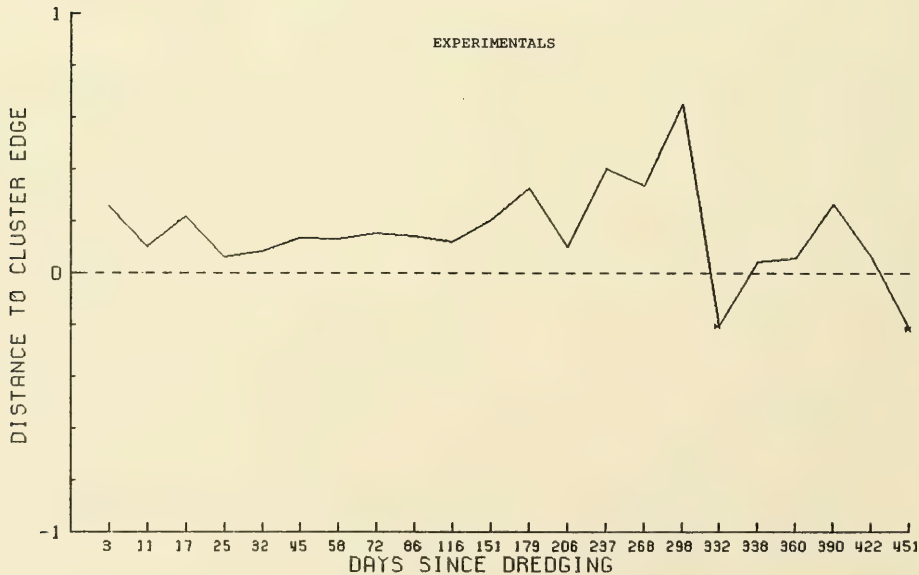
STABILITY ANALYSES

Stability analyses for time-sequence samples at station 1 showing sample variations and time to faunal recovery--beach restoration project, Panama City Beach, Florida (November 1974 to November 1977).

TREASURE ISLAND BEACH RESTORATION



TREASURE ISLAND BEACH RESTORATION



<p>Saloman, Carl H. Benthic community response to dredging borrow pits, Panama City Beach, Florida / by Carl H. Saloman, Steven P. Naughton, and John L. Taylor.--Fort Belvoir, Va. : U.S. Army Coastal Engineering Research Center ; Springfield, Va. : available from NTIS, 1982. [138] p. : ill. ; 28 cm.--(Miscellaneous report ; no. 82-3) Prepared for Coastal Engineering Research Center by National Marine Fisheries Service, Southeast Fisheries Center; DACW72-81-M-0198. Report gives biological and physical oceanographic data from baseline work, and studies of dredged and undredged sediments before and after dredging (9-meter contour) at Panama City Beach, Florida. Analyses of hydrology, sediments, and benthos are included. 1. Beach nourishment--Environmental aspects--Florida--Panama City Beach. 2. Benthos. 3. Dredging. 4. Panama City Beach (Fla.). I. Naughton, Steven P. II. Taylor, John L. III. Coastal Engineering Research Center (U.S.). IV. United States. National Marine Fisheries Service. V. Title. VI. Series: Miscellaneous report (Coastal Engineering Research Center (U.S.)); no. 82-3. TC203 .U581mr 627</p>	<p>Saloman, Carl H. Benthic community response to dredging borrow pits, Panama City Beach, Florida / by Carl H. Saloman, Steven P. Naughton, and John L. Taylor.--Fort Belvoir, Va. : U.S. Army Coastal Engineering Research Center ; Springfield, Va. : available from NTIS, 1982. [138] p. : ill. ; 28 cm.--(Miscellaneous report ; no. 82-3) Prepared for Coastal Engineering Research Center by National Marine Fisheries Service, Southeast Fisheries Center; DACW72-81-M-0198. Report gives biological and physical oceanographic data from baseline work, and studies of dredged and undredged sediments before and after dredging (9-meter contour) at Panama City Beach, Florida. Analyses of hydrology, sediments, and benthos are included. 1. Beach nourishment--Environmental aspects--Florida--Panama City Beach. 2. Benthos. 3. Dredging. 4. Panama City Beach (Fla.). I. Naughton, Steven P. II. Taylor, John L. III. Coastal Engineering Research Center (U.S.). IV. United States. National Marine Fisheries Service. V. Title. VI. Series: Miscellaneous report (Coastal Engineering Research Center (U.S.)); no. 82-3. TC203 .U581mr 627</p>
<p>Saloman, Carl H. Benthic community response to dredging borrow pits, Panama City Beach, Florida / by Carl H. Saloman, Steven P. Naughton, and John L. Taylor.--Fort Belvoir, Va. : U.S. Army Coastal Engineering Research Center ; Springfield, Va. : available from NTIS, 1982. [138] p. : ill. ; 28 cm.--(Miscellaneous report ; no. 82-3) Prepared for Coastal Engineering Research Center by National Marine Fisheries Service, Southeast Fisheries Center; DACW72-81-M-0198. Report gives biological and physical oceanographic data from baseline work, and studies of dredged and undredged sediments before and after dredging (9-meter contour) at Panama City Beach, Florida. Analyses of hydrology, sediments, and benthos are included. 1. Beach nourishment--Environmental aspects--Florida--Panama City Beach. 2. Benthos. 3. Dredging. 4. Panama City Beach (Fla.). I. Naughton, Steven P. II. Taylor, John L. III. Coastal Engineering Research Center (U.S.). IV. United States. National Marine Fisheries Service. V. Title. VI. Series: Miscellaneous report (Coastal Engineering Research Center (U.S.)); no. 82-3. TC203 .U581mr 627</p>	<p>Saloman, Carl H. Benthic community response to dredging borrow pits, Panama City Beach, Florida / by Carl H. Saloman, Steven P. Naughton, and John L. Taylor.--Fort Belvoir, Va. : U.S. Army Coastal Engineering Research Center ; Springfield, Va. : available from NTIS, 1982. [138] p. : ill. ; 28 cm.--(Miscellaneous report ; no. 82-3) Prepared for Coastal Engineering Research Center by National Marine Fisheries Service, Southeast Fisheries Center; DACW72-81-M-0198. Report gives biological and physical oceanographic data from baseline work, and studies of dredged and undredged sediments before and after dredging (9-meter contour) at Panama City Beach, Florida. Analyses of hydrology, sediments, and benthos are included. 1. Beach nourishment--Environmental aspects--Florida--Panama City Beach. 2. Benthos. 3. Dredging. 4. Panama City Beach (Fla.). I. Naughton, Steven P. II. Taylor, John L. III. Coastal Engineering Research Center (U.S.). IV. United States. National Marine Fisheries Service. V. Title. VI. Series: Miscellaneous report (Coastal Engineering Research Center (U.S.)); no. 82-3. TC203 .U581mr 627</p>

